



Agriculture
Canada

Canadian
Forestry
Service

Service
canadien des
forêts

Taxation and the Forestry Sector in Canada

D. Boulter



Information Report E-X-33

Economics Branch, Canadian Forestry Service Headquarters



THE CANADIAN FORESTRY SERVICE AGRICULTURE CANADA

The Canadian Forestry Service is the principal source of federal expertise in forestry. Its general objective is to promote the wise management and use of Canada's forest resources for the economic, social, and environmental benefit of Canadians.

The following are the main functions of the CFS:

1. Coordination of federal policies, for the promotion of better resource management and forest industry development.
2. Provision of scientific and technological leadership in forestry through research and development.
3. Provision and analysis of national and international statistics and information as a basis for policy formulation.
4. Development and certification of codes and standards for wood product performance.
5. Protection of Canada's forests from foreign pests.
6. Fostering the potential use of the forest resource for energy.
7. Contributing to the environmental objectives of the Department of Agriculture.

A number of federal agencies are involved in forestry programs and a Federal Forestry Sector Strategy Committee has been established to coordinate federal forestry activities. The Canadian Forestry Service has been designated the lead agency role.

The Canadian Forestry Service is comprised of a Headquarters Unit, six Forest Research Centres and two National Institutes. The Forest Research Centres are responsive to regional priorities and maintain close liaison with the respective provincial government forestry departments and other clients. They also participate in, and frequently lead, national programs. The National Institutes provide the focus for programs of national scope.

**TAXATION AND THE FORESTRY SECTOR
IN CANADA**

by

David W.K. Boulter

Information Report E - X - 33

**Economics Branch
Canadian Forestry Service
Agriculture Canada**

1984

•Minister of Supply and Services Canada 1984

Catalog No. Fo 29-7/33E

ISBN 0-662-13133-9

ISSN 0705-3282

Second impression 1984

Additional copies of this publication can be obtained from:

Distribution Centre

Environment Canada

151 Jean Proulx Street

Hull, Quebec

K1A 1C7

Cette publication est aussi disponible en français sous le titre *La fiscalité et le secteur forestier au Canada*

Boulter, David W.K. 1984. Taxation and the forestry sector in Canada. Agric. Can., Can. For. Serv., Inf. Rep. E - X - 33.

ABSTRACT

This report attempts to bring together the highlights and significant changes in the tax system at all three levels of political jurisdiction in Canada as they impact forestry and the forest sector.

Specifically, the report describes the array of taxes that impact on commercial activities in the forest sector, the comparative tax regime a potential investor would face in the United States (a country that has become an increasingly competitive force in forest products trade), and outlines options for utilizing/amending the tax system to induce more intensive forest management on public and private lands in Canada. As such, the report is directed to policy makers in the relevant levels of political jurisdiction to serve as a background for a number of proposals designed to make a contribution to the recently articulated goals of the federal policy statement on forest renewal. The report should also serve as a general introduction to forest taxation for students of forestry and the forest sector, particularly the somewhat theoretical aspects of natural resource policies found in the appendixes. Further, the deficiencies in the tax system as revealed in this report suggest there are a number of areas of potentially fruitful study.

RÉSUMÉ

Dans ce rapport on tente de rassembler les faits saillants et les modifications importantes du régime fiscal qui intéressent la foresterie et le secteur forestier pour les trois paliers de gouvernement au Canada.

Plus précisément, on décrit la gamme des impôts frappant les activités commerciales dans le secteur forestier, on établit une comparaison avec les États-Unis (pays qui devient un concurrent de plus en plus sérieux dans le commerce des produits forestiers), et on présente des possibilités d'utilisation et de modification du régime fiscal en vue d'encourager une gestion plus intensive des forêts sur les terres publiques et privées au Canada. Dans ce contexte, le rapport est destiné aux stratèges des divers paliers de gouvernement à qui il pourra servir de référence pour un certain nombre de propositions visant à répondre aux objectifs formulés récemment dans l'énoncé de la politique fédérale concernant le renouvellement forestier. Le rapport devrait également être utile comme introduction générale à la fiscalité forestière pour les étudiants en foresterie et le secteur forestier, en particulier l'aspect quelque peu théorique des politiques relatives aux ressources naturelles présenté en annexe. Les lacunes du régime fiscal révélées dans ce rapport indiquent que des études pourraient être utiles dans un certain nombre de domaines.

CONTENTS

	Page
EXECUTIVE SUMMARY	vi
INTRODUCTION	1
Content of the Report	2
I BACKGROUND	4
II THE TAX SYSTEM ON FORESTRY IN CANADA	17
Federal Taxation	20
Income	20
Capital Gains and Losses	28
Small Business and Corporate Income Tax	29
Other Tax Measures	32
Provincial Taxation	33
Small Business and Corporate Income Taxes	33
Logging Profits Tax	35
Municipal Taxation	36
Summary	42
Addendum	43
III TAX EXPENDITURES IN THE FORESTRY SECTOR	45
IV TAXATION ON THE FORESTRY SECTOR IN THE UNITED STATES	53
Taxation on the U.S. Forestry Sector	56
V TAXATION AND FORESTRY INVESTMENT DECISIONS	65
VI MECHANISMS TO FUND FORESTRY INVESTMENTS	72
VII PROPOSALS FOR TAX POLICY MODIFICATIONS	79
VIII CONCLUSIONS	84
APPENDIXES	89
I Selected References in the Income Tax Act	90
II Economic Rent and Theory of Resource Taxation	91
III Federal-Provincial Tax Equalization and the Forestry Sector	106

EXECUTIVE SUMMARY

This report attempts to bring together the highlights and significant changes in the tax system at all three levels of political jurisdiction in Canada as they impact on forestry and the forest sector. Since this aspect of forestry has received slight attention in the past 25 years (since Milton Moore's classical work on forestry taxes and tenures), the report encompasses a broad range of objectives with a focus on forestry renewal on public and private lands in Canada.

Specifically, the report describes the array of taxes that impact on commercial activities in the forest sector and the comparative tax regime a potential investor would face in the United States (a country that has become an increasingly competitive force in forest products trade). It also outlines options for utilizing or amending the tax system to induce more intensive forest management on public and private lands in Canada. As such, the report is directed to policy makers in the relevant levels of political jurisdiction to serve as a background for several proposals designed to make a contribution to the recently articulated goals of the federal policy statement on forest renewal. The report should also serve as a general introduction for students of forestry and the forest sector to the arcane subject (to that audience) of forest taxation, particularly the somewhat theoretical aspects of natural resource policies contained in the appendixes. Further, the dearth of information on certain aspects of the tax system as revealed in this report suggest there are several areas of potentially fruitful study.

The last decade has witnessed a renewed interest in the field of natural resource management, largely occasioned by the difficulties in reaching an accord on federal-provincial appropriations of oil and gas revenues. The importance of the forest sector to the national economy has only been comprehensively measured in recent years. The problems and potentials of the sector have received attention more recently at the federal level and have resulted in public statements on the strategy and policies to achieve these potentials.

However, there are a variety of institutional factors to be considered in the finance and management of natural resources in our federal system. The history of these aspects is reviewed and serves as a background to a full description of the tax system that prevails in the forest sector today. What is particularly difficult to assess at this time are the expanded powers of taxation and interprovincial trade afforded to the provinces in The Constitution Act of 1867.

The national wood supply situation that currently prevails is one of transition from extensive exploitation of the resource to the systematic replacement or renewal of the next crop. The general concerns for our ability to satisfy future industrial roundwood requirements have focused on the adequacy, or lack thereof, of forest management expenditures directed to forestry renewal. Current expenditures on forest renewal at approximately \$300 million annually have been estimated by senior levels of government and industry. It is estimated that an additional \$100 million per year is required to sustain the existing level of annual harvest and a gross incremental annual expenditure of \$350 million will be required to meet the forecasted demand by the year 2000.

The question, then, is what does the tax system offer or may offer in incentives to induce the desired expenditures for forest renewal on both private and public forest lands to sustain and increase the desired levels of forest production.

With respect to public lands, the view developed in the report is that unless the provinces are prepared to make basic changes in their approach to timber crop production, opportunities for using measures under the Income Tax Act (where the domain of the federal government to tax is pre-eminent) are limited. In general, tax incentives are likely to have an effect only on those individuals or corporations that have some equity in the future timber crops and have to pay income taxes on the revenues earned in the extraction and processing of such crops. The historical barriers to an equity position in future crops have caused a partitioning of forest management responsibilities that has contributed to an undesirable degree of inertia in the planning, finance, and implementation of forest management activities on the part of the two senior levels of government and industry. These institutions have individual strengths and degrees of interest in the management of timber resources that lack a cohesiveness of application to the management of the forest resource.

To partially overcome these historical barriers, it is proposed for further study that industry gain equity in future timber crops by "earning" a timber warrant (in volume terms) through incurring the necessary regeneration costs on cutover public lands (or other unallocated land). Amongst other things, these warrants would share many of the characteristics of those in the equity market, receive favorable tax treatment by the two senior levels of government, and reflect more clearly market conditions to the Crown in making allocation decisions amongst various land uses. Not only would there be a clarification of landlord-tenant responsibilities and rights, but a better balance of public and private responses to perceived future supply-demand conditions.

Complimentary to this proposal, it is noted that the nature of forest renewal activities is labor-intensive and there is a growing need to develop a labor force of silvicultural technicians. Therefore further study is proposed on a marginal employment subsidy directed toward the development and employment of silvicultural workers in forestry renewal activities above an average level during some base period. The initial subsidy period would be for 2 years at the full level of support and continue for an additional 3-4 years at progressively lesser rates of support. The essential feature of this design is that it should induce maximum employment in the first 2 years yet avoid rapid reductions in the initial employment levels immediately thereafter (an undesirable characteristic of most labor support schemes). Given that most firms would have a low base period level of employment because of current silvicultural activity, the subsidy should encourage the establishment of firms specializing in providing silvicultural services to industry and government.

With respect to private forest lands, the financial and consequent tax aspects of small landowners have received little investigation, despite the provision of significant public sector assistance (largely education and technical information programs). It is not clear whether the popular perception of inadequate investment on these lands results from the net cash flow position of landowners or whether their perception is that the returns from intensive forest management are inadequate. There is little the tax system can do for those in the former position and sufficient uncertainty exists to deter those who are neither in the business of farming nor in full-time commercial timber activities from undertaking such investments.

The Income Tax Act and Regulations, though both complex and vague, afford no particular preferential treatment to commercial activities in forestry. Indeed, the tax system may be characterized as being mildly anticompetitive insofar as its restrictions on allowable losses and their carry-forwards fail to recognize the long production process in growing and selling timber, thereby inhibiting new entrants to the sector. Further, the tax system discriminates, for much the same reasons, between even- and uneven-aged forest management regimes and, to a lesser degree, against activities to "normalize" a forest. In summary, the tax system should be made more explicit regarding the tax treatment of the nonfarm category of private nonindustrial forest landowners since the latter has attained a predominant position over the last decade.

These brief conclusions arising from this particular investigation of the tax system as it is applied to the forestry sector in Canada are still tentative. The body of

theoretical and empirical literature on forest resource taxation has been found wanting. The areas of resource taxation in most urgent need of examination are the interdependence (if any) between private and public forest land management, effects of the income tax on industry structure, and a theoretical investigation of tax neutrality and forest management regimes (even- and uneven-aged forests).



INTRODUCTION

It has now been more than 25 years since Milton Moore's classical work on forestry taxes and tenures in Canada.¹ Over the ensuing period there have been significant changes in the system of taxation at all three levels of political jurisdiction in the country. Paralleling these changes there has evolved a growing perception, particularly during the last decade, that the unutilized reserve of Canada's wood supply might not be adequate to meet potential future demands. Further, there is growing concern that the competitive position of the forestry sector in world markets is being eroded. This latter aspect has been addressed by considerable government support for the expansion and modernization of manufacturing and processing facilities, particularly in the disadvantaged regions of the country. This timely support reflects the growing recognition of the importance of the forestry sector in meeting both regional and industrial development objectives.

The federal government has articulated a strategy to meet these objectives with four basic components:²

1. industrial and trade development;
2. mission-oriented research and development;
3. human resources for the forest sector;
4. the need to ensure sufficient wood supply in Canada through forest renewal.

Forest renewal was given particular attention in a recent policy statement that outlined the magnitude of the costs involved and how they might be shared by the senior governments and industry.³

It is within the context of forest renewal that an examination of the tax system in Canada is required to ascertain its impact on forest management activities which hereafter will be generically referred to as intensive forest management.

1 A. M. Moore, *Forestry Tenures and Taxes in Canada*, Tax Paper 11, Canadian Tax Foundation, Toronto, Ontario, 1957.

2 Environment Canada, *A Forestry Sector Strategy for Canada*, Environ. Can., Can. For. Serv., Ottawa, Ont. Discussion Paper, September 30, 1981.

3 Environment Canada, *A Framework for Forest Renewal*, Environ. Can., Can. For. Serv., Ottawa, Ont. Policy Statement, September 2, 1982.

The basic objective of this report is to describe the array of taxes at the federal, provincial, and municipal levels of government that are applicable to commercial activities in the forest sector, with particular focus on their influence on decisions (individual or corporate) to invest in a variety of forest management activities on private and public lands. It should be noted that given the paucity of empirical evidence in this area, a normative approach to assessing investor response to the tax system is employed.

The second objective of the report is to describe and compare the tax regime that a potential investor in the United States would face. Notwithstanding the dangers of partial examination of intercountry tax comparisons, this objective is predicated on two observations. First, the U.S. has become a competitive force of increasing importance in forest products trade and, second, has a relative wealth of theoretical and empirical material based on notable differences of tenure, market, and tax treatment of investment and commercial production activities in the forestry sector.

The final objective is to develop options for utilizing or amending the tax system to induce more intensive forest management on public and private lands. This objective is complicated by the significant differences in tax treatment of certain activities arising from the forest land tenure arrangements and the multilevel fiscal system with an equalization scheme in Canada. Also, the evolving pattern of stumpage and other charges and changes in forest regulation, all under provincial jurisdiction (the transfer of natural resources jurisdiction being the cornerstone of provincial finance at Confederation), has a significant effect on the impact of the tax system. This aspect, however important, is beyond the scope of the report and will only be briefly touched upon.

In summary, this report limits its focus on the tax system and its efficacy to act as a funding mechanism to induce intensive forest management in Canada with a comparison to that found in the United States.

Content of the Report

The report is organized into a number of sections and appendixes. The latter are used to examine both theoretical and controversial issues of natural resource policies that would otherwise distract the reader from the primary description of the tax system in the forestry sector as found in the text.

Section I describes the background of the development of the tax system in Canada with particular reference to natural resources, the variety of other funding mechanisms that have been employed by the public sector, and recent revenue and expenditure data by jurisdiction with a focus on expenditures related to intensive forest management.

Section II forms the main part of the report which describes the various kinds of taxes at each of the three levels of jurisdiction that apply to activities in the forestry sector.

Section III examines the preferential treatment, if any, the forestry sector has received over the last decade as indicated by the available tax expenditure data.

Section IV gives a brief overview of the federal and provincial (state) tax systems in Canada and the United States as an introduction to the tax system that has evolved in the U.S. forestry sector. This section explains the consistently different tax treatment in Canada and the U.S. of investments in primary forestry, leading to rather similar tax treatment of the manufacturing and processing of these crops for final consumption. Section V qualitatively reviews the fiscal incentives and disincentives to invest in forestry on public and private lands.

Section VI provides a brief review of the pros and cons of the funding mechanisms that have been employed in the forestry sector as a background to the tax policy proposals for federal and provincial government consideration found in Section VII.

Section VIII is a summary highlighting the major observations found in the preceding sections and contains proposals for further studies, largely empirical, that will become evident to readers of this report.

The appendixes cite the sections of the Income Tax Act, Regulations and Interpretation Bulletins relevant to the forestry sector, the pertinent theoretical literature on economic rent and resource taxation, and an assessment of the implications of the forestry sector model as utilized in the most recent federal-provincial equalization formula.

I BACKGROUND

The difficulties in reaching an accord on the federal-provincial appropriations of oil and gas revenues in the last decade serve as a dramatic example of the inherent problems in multilevel public finance and natural resource management in our federal system. Natural resources have played an enormously important role in our economic and social history where the term "rich in resources" imbued in the population a sense of economic insularity. However, the international commodity boom in 1972-73 and the later energy crisis suggested a change in economic priorities. Further, the uneven distribution of natural resources between regions in the country had long been held to be a significant factor in explaining regional economic disparity — a situation that was directly addressed in the Royal Commission on Canada's Economic Prospects in 1957.

The importance of the forestry sector, however, through its contribution to the national economy, has only been comprehensively measured in recent years. Despite these improvements in the information base pertaining to market activities in the sector, there remains a conspicuous lack of theoretical literature and empirical studies on the fiscal regime (taxation and expenditure) and forest management. A partial explanation for this situation may be the sudden increases in petroleum prices in the last decade that have overshadowed virtually all other natural resource revenues. Although natural resource revenues have increased tenfold in the last decade, 85 percent now comes from petroleum.¹

A brief review of the rights of the senior levels of government to manage and tax natural resources serves as a useful background to a subsequent focus on the tax system in the forestry sector.

The British North America Act of 1867 (B.N.A. Act) assigned the proprietary right to the provinces to derive public revenues from natural resources (land, minerals, freshwater fisheries, and forests). In effect, the citizens of a province are the owners of the natural resources with the government acting as the "steward" through the relevant agency. The philosophy of responsible government in the British system is to surrender (grant) full rights over the lands as the basis for the public finances of the province

¹ J.H. Perry, *Background of Current Fiscal Problems*, Canadian Tax Paper No. 68, Canadian Tax Foundation, Toronto, Ont. 1982. p. 120.

(These rights were later extended to the prairie provinces by the Natural Resources Transfer Agreement of 1930). In exchange for these proprietary rights, the provinces were limited to direct taxation (chiefly the property tax at Confederation) while the federal government reserved both direct and indirect taxes to generate revenues for its more expensive public functions (chiefly excise taxes at Confederation).²

Nevertheless, not all resources have been retained by the provinces, as both before and after Confederation, vast land areas were alienated to private ownership by sale or deed. This dichotomy of alienated (private) and unalienated (public) land has led to separate treatment for revenue purposes (discussed in the following section with respect to the forestry sector).

The province (the steward) has the right to appropriate the value of the natural resources *in situ* before further processing, and should do so to extract the maximum benefit for the owners (the citizens) of those resources. This right is usually exercised by applying a fixed percentage or unit volume royalty on the value of the resource in question. The fixed percentage is an *ad valorem* (literally "on the value of") or nonspecific tax on the price or value while the unit volume royalty is specific in that it does not change with price or value as it is applied to a physical unit of measure. A stumpage fee of "x" dollars per cunit would appear to have the characteristic of a specific tax (as opposed to a price) and persists to be referred to as a government tax in many quarters of the forestry community.³

The provinces also have other rights of resource ownership through the sale or leasing of limited access to natural resources by auction or negotiation. The management of the exploitation of natural resources (and replenishment where applicable) is generally governed by a variety of regulatory devices reflecting certain principles of resource management.

2 Direct taxes are basically a tax on persons who pay the taxes themselves while indirect taxes are generally on objects. The latter can be passed on (shifted) to other persons who therefore pay for them indirectly. This shifting effect can be achieved if the person legally taxed can include part or all of the tax in the price of the goods or service he sells, thus passing it on to the buyer. Examples of direct taxes are income, property, and inheritance taxes. Examples of indirect taxes are commodity (sales and excise) and production (or yield) taxes. The prevalence of provincial sales taxes is an exception to the economist's view of what is an indirect tax.

3 A more complete discussion of stumpage fees, economic rents, and resource taxation is found in Appendix II.

The federal government's influence in resource taxation is largely found in the corporate income tax. In 1917 the federal government introduced income taxes (personal and corporate), somewhat later than a number of provinces. The combined rates were relatively low and did not represent a significant share of public revenues, and were not an onerous burden on resource industries. Further, a number of relieving features of the federal income tax reduced the burden, particularly for the mining industry.

Problems in this multilevel system of public finance did not appear until the appointment of the Royal Commission on Dominion-Provincial Relations (Rowell-Sirois Report) in the 1930s. As Boadway and Flatters note:

"It is worth reminding ourselves of the context in which the Rowell-Sirois Report was written. The period was the late 1930s, when the consequences of the Great Depression were very much evident. Economic activity was still at a relatively low level, especially in the drought-stricken Prairie provinces. Provincial treasuries, laden with the heavy cost of relief payments, were seriously depleted. The tax system was in some disarray. Provincial and federal governments occupied similar tax fields but used vastly differing tax bases and rates, thereby causing inevitable inefficiencies and inequities. The economic study of public finance was in its infancy, and economic data, especially on the provincial economies, were virtually nonexistent. Given the circumstances in which the Rowell-Sirois Report was conceived, it is quite remarkable (and a tribute to the insight of its members) that its proposals regarding fiscal federalism remain intact today with such an apparently wide degree of support."⁴

With the onset of World War II the Commission's recommendations were temporarily deferred and the first of the 5-year tax rental agreements focusing on wartime finance (1942-47) were negotiated. In effect, the federal government "rented" the taxing powers of the provinces. In the post-war years and into the 1950s the federal government enjoyed primacy of taxation although increased rental payments were offered for a new agreement in 1947. All provinces accepted the 1947 agreement except Quebec (personal and corporate income taxes) and Ontario and British Columbia (corporate income taxes).

During this period the federal government began to influence provincial spending in essentially health and welfare areas by means of conditional or shared-cost agreements. The notable participation of the federal government in the forestry sector was the forestry agreements covering the period 1951-67. (The Canada Forestry Act passed in

⁴ R. Boadway, and R. Flatters. *Equalization in a Federal State*. Economic Council of Canada, Ottawa, Ont. 1982. p. 2.

1949 authorized federal-provincial assistance programs). As has been pointed out; "... the provinces were able to enjoy the favorable visibility of spending (often on federal/provincial shared cost programs) without the unfavorable visibility of taxing."⁵

The 1952 tax rental agreement was replaced by a tax sharing agreement in 1957 as a result of a change in the government. The collection of income taxes, including those provincially imposed, by the federal government was accepted by all provinces except Quebec (personal and corporate income taxes) and Ontario (corporate income tax). This collection of provincially imposed taxes would be carried out as long as the tax bases of the two jurisdictions were the same.

An exception to this federal-provincial tax sharing was the imposition of a "logging profits" tax by Ontario (1950, effective for 1949) and British Columbia (1953). It is hypothesized that the antecedents of such a tax can be found in the mining profits tax of 1907 in Ontario. The purpose of that tax was to isolate and tax that portion of profits not attributed to processing and manufacturing of mineral resources where the province had retained the right to mineral resources on Crown lands that were alienated to private ownership. The special tax of 9 percent of logging profits replaced the liability for the general 7 percent provincial tax on corporate income. As the 9 percent tax was deductible from taxable income subject to federal income tax, it effected a temporary reduction in federal and provincial taxes on logging profits. In 1952 these profits became subject to the full rate of the federal corporate income tax and the logging tax became an additional tax liability as a result of changes to the tax agreement of 1952-57.⁶ Although there was a subsequent modification in the calculation of this tax, it was eventually abandoned by Ontario in 1972 and is abated on a federal-provincial pro rata basis in Quebec and British Columbia (see following section for a more complete description of this tax).⁷

The interesting aspect of this tax is whether or not this constitutes a province's prior right of taxation of natural resource income. The federal government has not

5 Thorne, Stevenson and Kellogg, *Funding Mechanisms for Forest Management*. Prepared for Canadian Council of Resource and Environment Ministers (C.C.R.E.M.) Ottawa, Ont. 1981. p. 13.

6 Moore, *op. cit.* p. 203.

7 Quebec introduced a similar tax in 1964 and made it part of their corporate income tax act in 1972.

recognized such a provincial claim. It represents raising the weight of taxation in this sector above that of business in general. Further, and more importantly, the federal government would only recognize such a prior right if the logging profits tax was a substitute for royalties or other direct charges. If such was the case, the logging profits tax would be fully deductible from taxable income for purposes of federal tax as it constitutes a cost of operation. This aspect has not been fully appreciated and will become more evident in the following sections where the monetary benefit flows to the different levels of political jurisdiction are estimated.

The fiscal arrangements of the last two decades may be characterized by equalization (direct transfers to "have-not" provinces) and tax sharing with a gradual elimination of shared cost programs.⁸ The shared cost program in the forestry sector was significant and covered a variety of forest management activities that may be characterized as extensive in nature (i.e., inventory, protection, and access programs). The total federal expenditures over the period amounted to \$63.8 million (approximately \$180 million in 1980 nominal dollars).⁹

The advent of the energy crisis in the 1970s graphically illustrated the problems of federal-provincial appropriation of natural resource values. The decade was also preceded by a discernible shift to conservation of resources, especially the nonrenewable kind, and marked environmental concerns on the part of the public. Furthermore, the Royal Commission on Taxation examined the taxation of natural resources and concluded that less preferential treatment would be desirable.¹⁰ The focus of their commentary was on the petroleum and mining industries, but the eventual tax reform legislation stopped significantly short of the Commission's recommendations. Tax treatment of the forestry sector received only cursory examination which suggests the Commission did not feel that preferential treatment was evident or that there were no particular problems in this resource sector.

⁸ Forestry is one of the source sectors in the equalization formula and is examined in Appendix III.

⁹ Thorne et al, *op. cit.* p. 16.

¹⁰ The Royal Commission on Taxation. *Report on the Royal Commission on Taxation.* Ottawa: Queen's Printer, 1966.

The retention of deductibility of provincial royalties from income subject to federal tax was confirmed but would soon prove to be a contentious issue with respect to what constitutes a royalty.

In 1974, several of the provinces raised their taxes and/or royalties on minerals, oil, and gas. Royalties for forest products in the form of stumpage fees were also raised, although not by the significant margins found in the nonrenewable resource sectors. It is held that this was in response to the rapid rises in oil prices and a growing sentiment by provincial governments that they were not obtaining an adequate share of revenues from resource exploitation.¹¹

These rapid increases in resource royalties naturally threatened to erode the federal tax base by way of deductibility from income subject to federal tax. Further, the federal government also wished to raise its own revenues. To this end the federal government withdrew the deductibility of royalties and other related charges and replaced them with a tax credit "capped" at different levels for the mining and petroleum industries in 1974 (specifically May 6, 1974 to December 31, 1975). Thus, having limited the deduction of provincial charges, the federal government proceeded to raise the corporate tax rate on resource profits from 46 to 50 percent, reduced the write-off of development expenses, moved the date of earned depletion ahead and reduced its rate, and made a number of other changes.

In 1976 this limitation of tax credits in lieu of royalty deduction was replaced by a resource allowance of 25 percent of resource income; in effect, the federal government was allowing more "tax room" to the provinces plus a number of other reductions of tax burden. By 1978 the provinces had begun to retreat in their tax efforts of the previous two years, recognizing that tax uncertainty in the resource industries was beginning to have potentially negative effects on the stability of those industries. Again, it should be noted that these rather dramatic changes did not apply to those industries in the forestry sector.

As Perry has succinctly noted:

"The lesson of the seventies was that capturing the elusive element of economic rent in natural resource production was a good deal easier in theory than in practice. While the benefits beyond the recovery of all legitimate costs and returns may be said to belong to society, the sharing in a substantial part of them

¹¹ Perry, *op. cit.* p. 125

is no doubt the prize that attracts entrepreneurs to resource development. In practice, schemes to divert most of this reward to government have turned out to be disastrous both in their complexity and in their outcome. In any event, by the end of the decade provincial mining taxation had reverted to a pattern much like that at its beginning, with the main emphasis on taxation of income and profits. The fact that tax rates were considerably heavier reflects the changed attitude towards resource exploitation in relation to the future of non-renewable deposits, environmental concerns, and exports of raw resources to be processed abroad."¹²

This experience of the last decade led the federal government to embody expanded powers of taxation and interprovincial trade to the provinces in The Constitution Act of 1867 (i.e., the addition of section 92A and "The Sixth Schedule"). Each province may make laws on the export of primary production from nonrenewable and forestry resources and electrical energy so long as such laws do not "authorize or provide for discrimination in prices or in supplies exported to another part of Canada." Further, and of greater importance, the provinces have the right to generate revenues "... by any mode or system of taxation ..." from nonrenewable and forestry resources in the province. The Act states that "production from a forestry resource is primary production therefrom if it consists of sawlogs, poles, lumber, wood chips, sawdust or any product manufactured from wood." The inclusion of lumber, wood chips, and wood pulp as primary production is a significant departure from the conventional taxonomy of primary products.

It is perhaps too soon to assess what impact these additional powers to the provinces will have on the management of natural resources. Nevertheless, these additional powers suggest that the federal government will have less latitude to influence the management of these resources, particularly through fiscal measures (tax expenditures) operating on a diminished tax base.

This brief description of the historical development of multilevel finance and natural resource jurisdiction may appear to be a digression from the main objective of describing the fiscal regime (the array of taxes at various levels of political jurisdiction) that are applied to commercial activities in the forestry sector. However, any understanding of the system of taxation in the forestry sector must be based on the recognition that the levels of political jurisdiction in the country primarily view taxes as a means of financing public goods and services and redistributing income and wealth

¹² Perry, *op. cit.* p. 128.

among members in the society. They are also quite aware and have made use of the tax system to mobilize resources to desired levels of economic activity as an indirect means of influencing social and economic development within their jurisdictions.

In the context of forest renewal the tax system may or may not induce investors to increase their stocks of forest capital to increase future supplies of primary wood products at sustainable levels. The taxing authorities may attempt to find "handles" that meet the conventional criteria of efficiency, equity, neutrality, and certainty, but will practically opt for administrative simplicity and revenue elasticity. Consequently, the tax handles selected may be inequitable and burdensome.

Comparisons of our tax system to that found in the United States are generally incomplete or based on partial analysis, and the forestry sector is no exception. Aside from differing social, political, and economic influences generally, there are important institutional differences in the forestry sector, particularly in patterns of land tenure and stumpage pricing. These two factors have a significant but imperfectly understood interplay with each country's tax system. However, they are beyond the scope of this report and are simply treated as exogenous factors which are part of the background to an examination of the tax system. Nevertheless, it is important to briefly describe the forest resource in Canada and related provincial financial aspects of the resource base.

Table 1-a describes the tenure of available productive forest land for commercial activity by province and for the country as a whole.¹³ Table 1-b describes the gross merchantable volume that is standing on these lands for the country as a whole. The area of forest land is predominately under Crown ownership (91 percent) with the provinces accounting for the overwhelming majority (81 percent of the total). Private ownership (including private nonindustrial landowners) accounts for approximately 9 percent of the total. However, this apparent minority tenure position can be misleading. Because of a variety of factors (site productivity, location, labor and developed infrastructure), this group has played a disproportionately larger role in market supply of roundwood that the areal extent of the resource base would superficially suggest. In central Canada and the Maritimes, private forest land accounts for a share that is much higher than the national

¹³ For comparison purposes, see Section IV for the situation in the United States.

average (ranging from 10-77 percent of the provincial total). It is variously estimated that as much as 30 percent of industrial roundwood supply in Canada has come from these lands held by as many as 500 000 owners.¹⁴ Unfortunately, the data on private forest lands and their owners are far from satisfactory despite the efforts of public agencies in the eastern provinces where the economic importance of this group is recognized. A recent article has described this group most concisely:

Individual private forests and farm woodlots average less than 70 ha in all provinces, are frequently fragmented and silviculturally complex, and are held by a diverse group of individuals with a vast array of objectives for owning forest land.¹⁵

It might also be pointed out that this "diverse group" has been subjected to varying degrees of economic pressures and rationally responds by maintaining proportionately lower volumes of forest capital (growing stock or inventory) while maximizing their cash flows to the extent their assets permit. Public agencies, largely exempt from such economic pressures, rationally respond by attempting to maximize the physical supply of roundwood per hectare, i.e., the point of culmination of mean annual increment with the consequence of longer rotations and higher volumes of growing stock.

The general concerns for our ability to satisfy potential future industrial roundwood requirements have recently focused on the adequacy, or lack thereof, of forest management expenditures directed to forestry renewal. The current situation has been described as one of transition from exploiting a mine of virgin timber (characterized as extensive management with significant exploration and development costs) to that of systematic replacement or renewal of the next crop (commonly referred to as intensive forest management and implying a higher proportion of capital and other inputs relative to land). In addition, management activities directed towards closer utilization of the existing capital stock and greater protection from the natural losses of insects, disease, and fire can go a long way to augmenting timber supply in the transition period. Current expenditures on forest renewal have been estimated at approximately \$300 million annually by senior levels of government and industry and an additional \$100 million per year is

14 Ontario Ministry of Natural Resources, *Private Land Forests, A Public Resource*, Government of Ontario, Toronto, Ont. Undated. A minimum estimate would be in the neighborhood of 15 percent.

15 G. Madigan, and A. R. A. Jones. *Provincial Assistance to Private Forest Owners in Eastern Canada - A Survey*, For. Chron. 56(3): 104-108.

Table 1-a - Area of Available Productive Forest Land.

Province or* Territory	Tenure				Total
	Federal	Provincial	Private	Municipal	
Area (1 000 km ²)					
Newfoundland	0.04	75.03	3.75		78.82
Nova Scotia	0.00	6.41	22.05		28.46
New Brunswick	1.12	28.15	29.58		58.85
Quebec	1.21	430.38	57.12		488.71
Ontario	3.32	293.21	34.27		330.81
Manitoba	0.93	113.38	3.57	0.38	118.25
Saskatchewan	1.64	71.99	0.00		73.63
Alberta	0.00	133.20	0.00		133.20
British Columbia	2.38	397.10	13.70	0.25	413.43
Provincial	10.62	1 548.86	164.05	0.63	1 724.15
Subtotal (%)	(0.6)	(90.0)	(9.5)	-	(100.0)**
Yukon	49.28	0.00	0.00		49.28
N.W.T.	137.39	0.00	0.00		137.39
Canada Total	197.29	1 548.86	164.05	0.63	1 910.82
(%)	(10.3)	(81.0)	(8.6)	(-)	(100.0)**

Table 1-b - Volume (Gross Merchantable) by Tenure

Summary for	Volume (1 000 m ³)				
Canada Total	766 277	17 460 585	1 377 128	-	19 643 751
(%)	3.9	(88.9)	(7.0)	(-)	(100.0)**

* Prince Edward Island has 2 400 km² of productive forest land.

** Figures may not add due to rounding.

Source: G.M., Bonner, *Canada's Forest Inventory*. 1981. Environ. Can., Can. For. Serv., Ottawa, Ont. 1982.

required to sustain the existing level of annual harvest. To meet the forecasted demand by the year 2000 the incremental annual expenditure is estimated at \$350 million.¹⁶

The provincial governments, responsible for the predominant share of productive forest land, account for the greatest share of forest management expenditures. The provinces make expenditures directly on the resource base (generally silviculture and protection) or indirectly through a variety of tenure agreements (prescribed fees, negotiated compensation, stumpage offsets of allowable costs, etc.) with private industry, which represents the major lessee on public forest lands. For its part, private industry assumes the responsibility of forest harvesting subject to public agency regulation and approval. Industry has little interest or incentive to participate in forest renewal and protection as they correctly perceive uncertainty of equity in the future crop. The provinces as landlords of the forest property are charged with maintaining or enhancing the rental value of the public resource. Owners of freehold forest property (large industrial or small individuals) would seek to do the same, that is, to maintain or enhance their property, subject to the relative burdens of income, property, and other taxes.

The federal government has a particular interest in the trade and commerce aspects of the forestry sector. It has participated in funding silvicultural and protection activities largely through cost sharing agreements and has provided major support to these activities through significant expenditures on forest research and development. However, the federal and provincial governments may have a more pervasive impact on the forestry sector through the application of a variety of taxes, chiefly personal and corporate income taxes, which is the subject of the following sections.

Table 2 outlines the major direct revenue and expenditure flows of the provinces in their capacity as the largest landlords in the forestry sector. The data in Table 2 are for the latest available year and do not reflect the significant increases in both items over the last decade. Of the \$612 million of total expenditure, the provinces provided about 83 percent of these funds. The federal share of the balance was almost equally channelled through shared-cost programs and direct expenditure by federal agencies.

It is estimated that the industrial private sector accounted for \$95 million of forestry and related activities in 1977 of which \$22 million was spent on regeneration and

¹⁶ Environment Canada, *op. cit.* 1982. p. 3.

stand improvement (\$12 million was spent on public lands).¹⁷

Similar expenditure data for nonindustrial private forest landowners are virtually nonexistent (although theoretically available from individual and small business tax returns). There is limited information on the area of forest land and cash receipts from the sale of forest products thereon from the Census of Agriculture.

In addition, there are only a few private forest landowner surveys (Ontario, Nova Scotia, and New Brunswick, forthcoming), which describe a number of owner and land characteristics. None of these has any income-expenditure data to attribute to the forest management activities on which these studies report. Nevertheless, it is still held that taxes and assessment of private nonindustrial forest lands are a continuing obstacle to intensive forest management. The potential role of the taxation system to induce desired (and undesired) kinds and levels of economic activity at the various levels of political jurisdiction needs further exploration. Further, the recent additions to The Constitution Act of 1867 expand the latitude of provincial management in fiscal, development, and export aspects of natural resources and have potentially significant implications for the sharing of forestry renewal responsibilities.

The fundamental issue is that unless the provinces are prepared to make basic changes in their approach to timber crop production, opportunities for using incentive measures under the Income Tax Act (where the domain of the federal government to tax is pre-eminent) are limited. In general, tax incentives are likely to have an effect only on individuals or corporations that have some equity in the future timber crops and have to pay income taxes on the revenues earned in the extraction and processing of such crops.¹⁸

17 F.L.C. Reed & Associates. *Forest-Management-Expenditures in Canada Compared to Taxes Generated by the Forest Sector*. Prepared for: Canadian Pulp and Paper Association, Montreal, Que. 1980.

18 Environment Canada, *Federal Policy on the Canadian Forestry Sector*, Environ. Can., Can. For. Serv., Ottawa, Ont. A Discussion Paper. 1979.

Table 2 - Direct Revenues and Expenditures by Province - 1979

Province or Territory	Revenues			Expenditures			
	Stumpage & Royalty	Other ¹	Total	Silviculture	Protection	Other ²	Total
(Million dollars)							
Newfoundland	0.3	1.4	1.7	3.0	1.1	7.5	11.6
Prince Edward Island ³	-	-	-	1.8	0.1	0.8	2.7
Nova Scotia	0.8	0.8	1.6	10.3	1.3	14.4	26.0
New Brunswick	6.8	1.0	7.8	8.5	7.6	5.6	21.7
Quebec	29.1	11.5	40.6	28.0	21.2	70.7	119.9
Ontario	42.7	6.5	49.2	29.5	30.8	34.6	94.9
Manitoba	1.6	0.4	2.0	1.2	6.5	2.2	9.9
Saskatchewan	3.8	0.1	3.9	2.6	2.2	5.9	10.7
Alberta	5.6	1.8	7.4	6.2	18.4	25.7	50.3
British Columbia	542.7	22.9	565.6	60.3	37.3	112.7	210.3
Subtotal	633.4	46.3	679.7	151.4	126.5	280.1	558.0
Yukon & North West Territories ⁴	-	-	-	-	7.6	3.7	11.3
Unallocated	-	-	-	4.8	9.0	28.9	42.7
Canada Total	633.4	46.3	679.7	156.2	143.1	312.7	612.0

1. Includes protection charges, ground rents, and miscellaneous fees.

2. Includes access development, research, inventory, and acquisition and administration.

3. Total charges reported were \$20 000.

4. Total revenue was \$41 890.

Source: Reed, *op. cit.* 1980.

II THE TAX SYSTEM ON FORESTRY IN CANADA

The commercial activities of individuals, small businesses, and large corporations in the forestry sector in Canada are subject to a variety of direct and indirect taxes imposed by one or more of the three levels of political jurisdiction in Canada. Several of these taxes are either in combination (composite) and/or collected by the more senior level of two jurisdictions which is characteristic of a multilevel system of public finance in a federal state. Given this characteristic, the following description of the tax system is organized by type of tax and its application to the taxpayer with a brief history of the tax. The property tax is the last described and is organized by provincial jurisdiction. The reference year for all taxes is 1982 exclusive of changes in Bill C-139 (December 7, 1982), Amendments to the Income Tax Act (based on the budgets of November, 1981 and June, 1982) and the tax proposals contained in the federal budget of April 19, 1983. Highlights of these changes are found in the addendum to this section. The property tax as described is from a single source referenced to the year of 1978.

The following section (Section III) compares the apparent incidence and burden of the tax system on the major components of the forestry sector to the manufacturing industries as a group. Further, crude estimates of tax expenditures in the sector are made for the period 1970-79 as well as several other tax ratios. This limited empirical data will give some idea of the potential to allocate tax benefits to forest renewal.

The commercial activities of the forestry sector do not receive preferential treatment by the tax system in Canada, especially when compared to those engaged in extractive resource industries (mining, oil, and gas). Further, the tax system may be characterized as being somewhat anticompetitive in nature, i.e., it does not facilitate entry of firms (individuals or corporations) into the sector.

This is not to suggest that the forestry sector does not receive special treatment as revealed by the significant tax expenditures in recent years.¹ However, certain characteristics of growing and marketing wood "crops" are unique and can result in tax

¹ A tax expenditure is a reduction in taxes that would otherwise have to be paid because of doing certain things or receiving certain kinds of income. It is therefore symmetrically equivalent to direct public expenditures and is sometimes referred to as "backdoor spending."

problems. The unusually high capital (productive forest) to output (annual yield available for harvest) ratio, which is simultaneously interchangeable, and the fact that timber crops require such a long period of production (ranging anywhere from 40-120 years) can result in pronounced short-run variations in market supply (i.e., harvesting levels significantly above or below the annual sustained yield).² Further, the tenure pattern of productive forest land (noted in the preceding section) presents an institutional factor that has implications for stumpage values, wood production, and forestry investment. Although stumpage and tenure aspects are beyond the scope of this report, they deserve brief comment insofar as they have an impact on the determination of income from growing trees. The tax on that income is important to both the owner of forest land and those who consume timber for further processing into saleable products of increased value. Stumpage value is that which is ascribed to uncut timber in the forest. It is usually conceived as a residual after the costs of harvesting and processing the standing timber into saleable products plus a "normal" profit margin are subtracted from the sale value of these products. Theoretically, these realized stumpage values should fluctuate with the selling price of the final product and be ascertained through appropriate appraisal techniques.

In reality, this approach is utilized in one provincial jurisdiction (British Columbia) whereas the remaining provinces have a variety of administered stumpage charges of increasing complexity of detail and subject to periodic review of timber on public lands. This "pricing" behavior reflects the attempt by public agencies to emulate the market in appropriating this economic residual.³ In addition, the pattern of tenure (Crown and freehold) may have an important influence on stumpage prices and, hence, on incomes through the relative shares of Crown and freehold productive forest land and annual harvests, i.e., the nature of competition in the relevant market area. The pattern of tenure in Canada (a diminishing proportion of alienated Crown land as one moves from the eastern regions to the west) may have important consequences for stumpage prices. It is

² J.A. Zivnuska, *Some Aspects of the Economic Theory of Forestry*, Land Economics. Vol. 25. 1949. p. 165-172.

³ Unfortunately, this residual (stumpage) is often incorrectly equated to economic rent (land rent) whereas it is essentially a royalty. This aspect and the implications for a variety of taxes is discussed in Appendix II.

highly unlikely that a rational private forest landowner would view stumpage as an economic residual, but rather as a price that should cover all costs of producing (growing) timber including an allowance for profit and risk. Where such stumpage prices are administered by public agencies (with proportionately large areas and volumes of timber), the private owner will only participate in timber growing and selling if such prices reflect the real costs of this activity. If they are below the seller's reservation price, he will either not participate in the market (thereby reducing supply) or he will liquidate his timber capital and invest the resultant income in a more profitable activity.

On the other hand, the proceeds of timber sales and leases of Crown forest lands managed by public agencies are generally directed to general consolidated accounts, and have greatly exacerbated an already vague recognition of cost-price relationships of producing and selling public timber. To a large measure recent studies have repaired this situation, but fail to recognize that the costs and returns of growing timber crops on private and public lands are not on an equal basis, particularly as the latter are free of tax.

This brief commentary serves to introduce the three general problems for tax treatment of growing and selling timber, and how the Canadian system approaches them. The three major problems are:

1. the temporal allocation of the costs of growing timber,
2. the application of the concept of capital gain to forest crops, and
3. the limitation of (or disincentive to) new entrants to timber growing (and significant expansion of those already holding freehold forest land) through restriction of income aggregation (i.e. income from sources other than growing and selling timber).

A later section will describe the approach taken in the United States to these problem areas.

The taxing powers of the three levels of political jurisdiction have evolved since the B.N.A. Act of 1867 which gave the federal government eminent domain of taxation while limiting the provinces to certain kinds of taxes generally referred to as direct taxes. During World War II and after, a pattern of tax sharing (initially tax renting) became the established pattern with the result that the same kind of taxes (direct) are shared by these two levels of government and should be viewed as "composite" taxes. The kinds of taxes that may be applied by each level of government are:

- Federal - Income (corporate, small business, and personal)
- Capital Gains and Losses
- Excise (production)
- Sales (consumption)
- Customs Duties
- Provincial - Income (corporate, small business, and personal)
- Sales (consumption)
- Logging Profits (British Columbia and Quebec)
- Succession Duties (Quebec)
- Municipal - Property

Of these variety of taxes, the two that are perhaps most significant to intensive forest management are income and property taxes on which this report focuses. The following discussion examines each of these taxes in turn and how they are shared by the various levels of jurisdiction.

Federal Taxation

Income

The Income Tax Act is both a complex and vague document in several areas, requiring "provisions" in the Regulations. The essence of the Act is the definition of the obligations of a taxpayer, which determine the nature and extent of the tax liability. A further set of documents known as Interpretation Bulletins are provided by the agency charged with tax collection to assist the taxpayer in self-determination of tax obligations.

The relevant sections of the Act and Regulations and numbered Interpretation Bulletins noted in this section are summarized in Appendix I (and are by no means an exhaustive listing of same).

There are basically four kinds of income, each of which has its own schedule of rates and tax. These are personal income (from paid employment), business or property income (from the sales of goods and services), investment income (interest, dividends, royalties, etc. from the use of the taxpayer's capital), and capital gains (realized appreciation of capital goods over historical cost and since 1971, subject to taxation on one-half of the gain). Each of these may be accorded a measure of relief, except personal income, upon experiencing a loss. Personal income will not be examined because the primary concern is with income received by the individual as a forest property owner.

Income from investments, business or property is generally distinct from the other kinds in that all costs incurred to earn such income are fully deductible "where there is a

reasonable expectation of profit."⁴ Further, certain types of income are either excluded or exempt in the calculation of taxable income.

Costs can be classified as either current expenses (outlays to earn current income) or capital expenses (outlays for productive assets with economically long lives, i.e., generally more than one year). The latter expenses are further subdivided into a number of classes, each with their own capital consumption allowance (depreciation) schedule which is calculated as a percentage of original capital cost on a declining balance basis, thereby allowing the taxpayer to "write-off" a portion of such cost against current income in an "accelerated" manner, i.e., significantly before the economic life of the asset has been exhausted. Although there are no preferential provisions in the Act for taxpayers earning income in the forest sector, they may be accorded differential treatment by their legal organization (individual, small business, or corporation) and the nature of their capital assets, subject as they are to differing depreciation schedules. However, for those taxpayers earning income from the sale of standing timber (cutting rights) or primary forest products (harvesting by the taxpayer), there arises a complication through a further classification of forest property, which for certain taxpayers may represent their largest capital asset. This further classification of forest property employs language that may cause confusion as it conveys a different meaning from that generally found in forestry literature.

The tax treatment of growing and selling timber can be summarized at the risk of generalization. The income tax consequences of such activity largely depend on the nature of the taxpayer's interest in forestry property (private freehold, sale or lease of cutting rights on private land, long-term lease on Crown lands, etc.), the extent of his activity (stumpage sales, logging sales, manufacturing and processing sales on a regular or periodic basis), and other sources of income of the taxpayer (farming, paid employment, or other line of business). To a large measure these factors may determine what class of forest property the taxpayer has and reflect to a general extent the legal organization of the taxpayer (individual, farm, small business or corporation).

The classification of forest management expenses (current or capital) for any of the above situations will be the same, but the treatment (the extent of their deductibility

⁴ This test is of particular importance to taxpayers whose major sources of income are outside timber growing and who wish to initiate intensive forest management (afforestation) activities on forest property.

from income) will vary with the extent of the taxpayer's activity in the "business."

To begin, the income from the sale of stumpage or primary forest products will generally be considered as business income of the taxpayer as owner of the forest property. Whether such income is reported on an accrual or cash basis depends in part on the class of forest property and hence, the legal status of the taxpayer. For example, taxpayers who earn income from farming or a combination of farming and some other (incidental) source would use the cash basis of reporting income.

The costs allowed as deductions from income in computing taxable income are either current expenses or capital outlays subject to a depreciation rate as allowed by the particular class of assets to which the capital item belongs. The majority of forest management costs would be treated as current expenses. Examples of such costs would be site preparation (land clearing, scarification, and fertilization), regeneration (seeding and planting), stand improvement (clearing, thinning, pruning), protection (application of herbicides and pesticides as well as construction of firebreaks), and what are generally referred to as annual carrying charges (property taxes, property mortgage interest, general maintenance costs, and interest on loans used to finance any of these management activities). Should the taxpayer sell the cutting rights, costs of arranging this sale, such as legal or tree marking requirements, would be treated as current expenses.

Where the taxpayer harvests the standing timber for sale at roadside or delivery to a mill, all costs of harvesting and transportation would be deducted from income earned. Outlays for machinery and equipment, buildings and access roads (where used for more than one year) are deemed to be capital costs subject to depreciation at the appropriate rate. Again, for those taxpayers reporting income on a cash basis, depreciation would likely be on straight-line basis.

In effect, taxpayers have the benefit of expensing current costs of forest management to generate future crops (and income therefrom) against current income, or if there is no current income from the forestry property against other "nonfarm" income subject to loss limitation (discussed later in this section).

The other costs incurred in the management of forest properties are capital costs. These costs include such things as access roads, machinery and equipment, buildings (depending on whether they are used to earn income from farming, including tree farms, activities), and forest properties. This last group is the source of some confusion as was alluded to earlier in this section.

There are five classes of forestry property variously cited in the Act, Regulations and relevant Interpretation Bulletins. They are:

a) Timber Resource Property (para 13 (21) (d.1) of the Act)

This type of forest property is a right or licence to cut timber from a limit or area in Canada if the original right was acquired after May 6, 1974 (the effective date for this particular paragraph of the Act which was added to give meaning to timber resource property in the Act) and that right was subject to extension or renewal. What otherwise would qualify as a timber resource property but acquired before May 7, 1974 would be deemed a cutting right or timber limit (which are not defined in the Act).⁵ This distinction would appear to be insignificant but the income tax treatment of the two classes of property is quite different.

A timber resource property is depreciable and covered in Class 33 of Schedule II of the Regulations and may be depreciated at the rate of 15 percent. It is further characterized from other classes of property in that its disposition for proceeds in excess of its capital cost is not considered gain (excluded by subparagraph 39 (1) (a) (iv) of the Act).⁶ In any event, it is probably academic for Crown licences insofar as their sale is generally prohibited by the responsible public agency (this aspect of capital gain or loss is discussed later in this section).

b) Cutting Right and Timber Limit (Section 1101 (3) of the Regulations)

These two types of tenure or classes of property are not defined in the Act although they have specific meaning in forestry convention. Deductions from their capital cost are provided by subsection 20 (1) (a) of the Act and paragraph 1100 (1) (e) of the Regulations. Further, they are treated as separate classes of property by virtue of paragraph 1101 (3) of the Regulations. Schedule VI of the Regulations provides for the maximum amount that can be claimed as a deduction to capital cost. It is the peculiar method of calculating what is essentially a depreciation charge that has been confused with

⁵ See also para. 8, IT. - 481 - *Timber Resource Property and Timber Limits*, Revenue Canada, Taxation. Nov. 27, 1981.

⁶ "undepreciated capital cost" was defined in the amendment to subparagraph 13(21) (f) (ii) of the Act.

depletion in nearly all references since and including Moore's study in 1957.⁷

A timber limit or cutting right may be acquired with or without title to the land upon which the timber stands. In the case of a timber limit with title to the land, the acquisition price is the capital cost, which is then adjusted by subtracting the "residual value" (the value of the property if the merchantable timber is removed) to arrive at an "adjusted cost base," plus the addition of any associated costs such as *bona fide* cruises, preparation of maps, cut plans, etc.

The next step is to determine the volume of merchantable timber to be removed and divide this into the allowable cost base to obtain a dollar value per unit of volume (cords, cunits, board feet, etc.), which becomes the rate for depreciation purposes. The deduction for depreciation is then charged against the capital cost at the rate of harvest of the merchantable timber in each taxation year until the cost allowance is exhausted. Should the initial volume be subsequently found to be an underestimate (or the logging period is of such length to allow for a significant increment of natural growth), calculation of a new (lower) depreciation rate could be required for deduction against the undepleted capital cost (Section 3 (b) of Schedule VI of the Regulations). The absence of such a revised calculation would amount to a kind of "accelerated" depreciation.

On the other hand, should the standing timber be substantially reduced (through fire or insects), it would seem that the undepleted capital cost (of the destroyed timber less salvage value, if any) should be fully deductible. On this point, the relevant section of the Regulations is mute.

Finally, should a taxpayer not wish to perform the calculations for the depreciation rate outlined above, he may elect to deduct the lesser of \$100 or the proceeds of timber sale.

⁷ Depletion is based on a rate of production basis and deducted as a fixed percentage of gross revenue in determining taxable income. Such a deduction was provided under section 65(1) of the Act which includes a timber limit. However, such an allowance was never provided by the Regulations (Part XII, sections 1201-1210) and was available only to the oil and gas and mining industries as a compensation for "risk." Depreciation is a percentage deduction based on time against original capital costs as provided under section 20(1) of the Act and, as such, is applicable to timber limits, cutting rights, roads, logging equipment, and other capital assets. The purchase price of a timber limit or cutting right is the capital cost from which a deduction for "consuming" the capital over time has been made, which in the convention of forestry amounts to "depletion" of the stock of standing timber. The two deductions, then, are independent.

For a taxpayer holding a cutting right, the calculation of "residual value" would not apply as he would generally not have title to the land.

The remaining three classes of forest property apply to private nonindustrial forest landowners, although they could have forest property classified as a timber limit or cutting right. These three classes are not defined in the Act or Regulations and would appear to be for taxpayers who derive the major portion of their income from paid employment, farming, or some other business activity unrelated to forestry. They are all defined in a single interpretation bulletin.⁸ Implicitly, owners of timber limits and cutting rights, whose forestry income may be incidental or minor to other income, are treated as if they were in "logging, lumbering, papermaking, or other similar businesses." (This is further discussed in a later section on proposals for tax policy and certain theoretical aspects are treated in Appendix II).

c) Farm Woodlot

This class of property applies to a farm which includes a woodlot from which the income is minor to the total farm operations. Income from the woodlot would include the sale of primary products (logs, poles, firewood, Christmas trees, etc.) or the cutting right to the standing timber. This latter type of income is deemed to be "on account of capital" and Section 43 applies (part disposition of capital property). In effect, the adjusted cost base of the total farm is reduced by the proceeds from the sale of cutting rights.

The depreciation rate applied to the capital cost base of the woodlot is determined in accordance with the rules in Schedule VI of the Regulations, i.e., those that apply to timber limits and cutting rights as provided under paragraph 1100 (1) (e) of the Regulations.

The costs of forest management incurred in regeneration, stand improvement, etc. are fully deductible in determining taxable farm income, i.e., the costs of forest management may be offset against farm income subject to the limitation of restricted farm losses. Restricted farm losses may be carried back one year and carried forward five years. The limitation of loss in any one year is the lesser of the taxpayer's farming income and the taxpayer's income minus all deductions except personal exemptions, noncapital losses, and net capital losses (para 7, IT/373).

⁸ I.T./373. *Farm Woodlots and Tree Farms*. Revenue Canada, Taxation. May 9, 1977.

Also, a farmer's woodlot may be of such a size that regular or even periodic income from cutting might no longer be viewed as "incidental" to other farm income. Where this is the case, the logging operations are still considered as being part of combined farming operations if the taxpayer elects to report such income under the cash method. On the other hand, where income is received for a cutting right to harvest standing timber (stumpage), the tax treatment would appear to be similar to that described for timber limits and cutting rights.

d) Tree Farm

This class of forest property was developed to cover those involved in the planting, tending, and harvesting of Christmas trees (including the purchase of land already planted to such trees). The tax treatment is that of a farming business regardless of whether other farming operations are carried out, and income so earned is reported on an accrual basis. All planting and tending costs are treated as annual costs if income received from eventual sale is reported on a cash basis, but are added to inventory if income is reported on an accrual basis. Treatment of the proceeds from the sale of such trees is always on income account except where the land and trees are sold with no amount being specified for the trees and the land does not revert to the vendor after the trees are removed. In this instance the proceeds would be treated as capital gain or loss. A further qualification is that "where tree sales are not reported by the sixth year after planting (or later, depending on local growing conditions)," the activity may be viewed as a forest planting (described below) and potentially requiring prior year assessment.

e) Forest Planting

This particular class of property applies to a taxpayer "who is not otherwise engaged in a lumbering or logging business," i.e., those *usually* covered under the timber limit or cutting right (although strong arguments could be made that certain taxpayers are not in the logging business and proceeds from the sale of timber should be treated as capital gain).

Expenses incurred to undertake reforestation with a view to earning future income from the sale of merchantable trees (or products therefrom) will most certainly create a loss (in the absence of similar income). Whether such "losses" are allowable deductions would seem to have to meet the test of "whether the activity is a business that was undertaken with a reasonable expectation of profit." The criteria employed to test expectation of profit are that the activity was undertaken in a systematic way, conducted

in a business-like manner and in accordance with good forestry practices. Should these criteria not be met, the losses would likely be treated as nondeductible personal expenses.

There is another situation which is somewhat intermediate to the above deductibility. Section 31 of the Act restricts the losses from farming by a taxpayer whose chief source of income is not farming or a combination of farming and some other source, i.e., what is sometimes known as a "hobby farm." The taxpayer's loss from forest management activities is limited to the lesser of his actual loss for the year, and \$2 500, to a maximum deduction against other sources of income of \$5 000. The nondeductible portion of the loss, if any, becomes the taxpayer's "restricted farm loss" which may be carried back one year or forward five years for deduction to the extent of the taxpayer's farming income in those other years (paragraph 111 (1) (c) of the Act).

In summary, the factors that would seem to determine the tax treatment of taxpayers who grow or sell timber are the nature of their interest in forest property, the extent of their forestry activity, and the relationship of forestry income (losses) to other (farm, employment or other business) income-earning activities. The opportunities to make investments in primary forest activity are decidedly present, albeit at very marginal tax expenditure incentives. The tax treatment of a taxpayer's expenses (current and capital) in determining taxable income may vary considerably because of the relation of other income to the forestry activity.

Finally, the tax treatment of related capital assets in the growing and selling of timber and the proceeds from the disposition of forest property or right to cut standing timber require examination.

There is a class of assets collectively known as Woods Assets referred to under paragraph 1100 (1) (f) of the Regulations. These assets consist of a class of property which otherwise might be included under any other class except that it is acquired for the purpose of removing timber from a timber limit and will be of no further use to the taxpayer after the merchantable timber has been fully removed (as referred to in Class 15 of Schedule II of the Regulations). Assets of this class of property would include harvesting equipment, maintenance facilities, camps and office buildings, and if the taxpayer so elects, logging roads and skidding trails (which would otherwise belong to Class 10 of Schedule II and subject to a maximum depreciation of 30 percent). The maximum allowance for deduction is provided in Schedule IV and is calculated the same way as that for a timber limit or cutting right (with which it is associated), i.e., on a unit of volume (cunit or board feet) basis. Where more than one timber limit is being

operated, parts of this class of property would require the determination of separate rates for each part of the assets so allocated.

Capital Gains and Losses

The taxation of capital gains along with a number of other tax reforms were introduced into the Income Tax Act over the period 1971-1974. The most notable of these for owners of forest properties was the application of a tax on one-half of the gain over historical cost (1971 base value or subsequent date of acquisition) upon disposition of the property at the marginal tax rate of the taxpayer. Prior to 1971 such gains were free of tax and this encouraged taxpayers to organize their activities to attempt to receive capital gain treatment of what otherwise might be viewed as ordinary income. The common example in forestry was the taxpayer, who having sold a cutting right to the standing timber, would have the stumpage proceeds taxed as ordinary income. However, should the taxpayer sell the timber and land *en bloc*, the proceeds would be treated as capital gain prior to 1971 and therefore free of tax. The essential criticism was that the taxpayer was dissuaded from retaining an economic interest in the growing of timber crops. The buyer, presumably in the business of processing timber, might also be of the same mind upon completion of the timber harvest. On the other hand, where the buying and selling of standing timber without title to the land or a cutting right was undertaken by a taxpayer "deemed" to be in the logging or processing business, any resulting gain or loss would be treated as ordinary income.

The situation for owners of timber limits and/or cutting rights not in the "business" of logging or processing timber is not explicitly defined in the Regulations. It is felt that such proceeds should be treated as capital gains. This *dichotomy* is somewhat paradoxical with respect to inducing intensive forest management by nonindustrial private forest landowners. In effect, the more casual the interest in the forest property, the more preferential the treatment of income derived from the property, particularly if the disposition of same is treated as a capital gain.

Finally, there is the matter of depreciation recapture, where a buyer acquires a timber limit or cutting right (and theoretically a timber resource property) and subsequently sells that right. In this case he will be required to include in his income the recapture of any capital cost allowance claimed under Schedule VI of the Regulations, to the extent that the lesser of the sale proceeds or the historical cost of the assets exceeds the undepreciated capital cost of this class of asset. An exception to this would be the class of forest property known as a tree farm. There is no provision for a capital cost

allowance against the growing stock as found in Schedule VI (paragraph 5 (b), IT/373).

A capital loss receives somewhat different treatment in that only one-half of the loss in any year can be deducted against realized gains in a given year. Any excess of capital losses over capital gains may be carried back one year and forward indefinitely. Again these allowable deductions can only be made against realized taxable gains. An individual taxpayer may elect to deduct excess capital losses from other income sources up to a limit of \$2000 per year.

The limitation of deducting capital losses only from realized capital gains is generally aimed at eliminating the possibility of reducing taxable ordinary income through capital losses.

The above serves to highlight the rather complex treatment of forest properties as classes of capital assets associated with the growing and selling of timber or cutting rights to the standing timber. The Income Tax Act is somewhat anticompetitive in character with respect to entry to this kind of business. The legal organization of the taxpayer (individual, farmer, small business or corporation), the extent of the timber activity, and the relationship of the timber activity to other income-earning activities are important factors in determining tax treatment, particularly in the classification of the taxpayer's forest property.

Small Business and Corporate Income Tax

Income earned by a small business or corporation in the forestry sector would normally be considered as business income. Investment income and capital gain from property would also be a potential source of income, particularly the latter gained from the disposition of forest properties. Income from all three sources earned by a corporation are taxed at a fixed rate but preferential rates are applied to small businesses and income earned in manufacturing and processing activities. This latter category is of particular benefit to virtually all those industries in the forestry sector (with the notable exception of logging which is deemed to be in the primary sector).

This income (i.e., that which is earned in a province) is subject to provincial taxation and is administered and collected (commonly called "piggybacking") by the federal government with the exception of Ontario and Quebec. The provincial governments have room to set their own rates although the federal government only abates up to 10 percent of taxable income earned in each province. The combined or composite rate is, therefore, the sum of the federal and provincial rates minus the 10 percent abatement. The provincial rates of taxation range from 8 percent (Quebec) to 16 percent (Newfoundland

and British Columbia) with notable differences in the definition of taxable income in Quebec and Ontario. This yields a marginal burden of 1-6 percent in certain provinces (discussed later in this section). Therefore, the nominal burden of the combined corporate income tax rate (general) was reduced by the tax reform legislation of 1971 from a high of 50 percent in 1972 to 46 percent in 1976.

Beginning in 1973, income earned from manufacturing and processing activities has been subject to a federal rate of 40 percent. Provincial tax rates do not differentiate this source of corporate income thus yielding a tax range of 38-46 percent.⁹

The federal small business tax rate was initially 25 percent on the first \$50 000, subject of an accrual of \$400 000, and gradually modified to the present level of \$150 000, subject to an accrual limitation of \$750 000 (proposed to increase to \$200 000 and \$1 million respectively in 1983). The small business rate on manufacturing and processing income is somewhat less at 5 percent (Alberta) to 12 percent (Newfoundland). Further, these taxes are also abated by the federal government at a level of 10 percent.

It should be kept in mind that comparisons of nominal tax rates in various political jurisdictions (including other countries) is decidedly misleading. The various jurisdictions have a variety of approaches in the determination of the tax base, i.e., the calculation of taxable income. Further, there may be more than one level of taxing authority whose tax burden may or may not be fully or even partially abated by senior levels of jurisdiction. Also, there is a question of the relative burden amongst industries within a jurisdiction that over time may impact differentially due to the characteristics of the tax system.

In Canada, the general approach to determining taxable income begins with the reporting of a corporation's book profit, which must be adjusted for exempt or nontaxable income, certain types of grants, and other corporate dividends, etc. The "adjusted" tax base is then calculated from which allowable costs (as expenses or capital cost allowances) are deducted to determine taxable income. A number of costs may also be deemed nonallowable (such as income taxes, certain nonarms length outlays, etc.) or limited (the rate at which various classes of capital may be depreciated). It is these allowable deductions (and whether they may be expensed or capitalized) that probably account for the variance in the effective tax rates (and tax burdens) between jurisdictions for a given type of income tax.

⁹ With the exception of Ontario, where the tax rate is reduced by 1 percentage point.

It is not the intent nor within the scope of this report to provide an exhaustive description of these deductions, but rather to highlight the significant changes in the Act over the past decade.¹⁰ The immediate objective is to lay the groundwork for the empirical estimates of the tax burden and tax expenditures in the forestry sector (found in the following section).

The major changes in the federal tax system over the last decade are framed in the Income Tax Reform Act of 1971 (and as selected from recommendations of the earlier Royal Commission on Taxation). The tax measures that probably have had the greatest impact on industries in the forestry sector are those which were designed to stimulate capital investment. These measures have antecedents in the post-war period prior to the Carter Commission and differ largely on the basis of being more liberally applied in the last decade (and are also the focus of the later discussion on the U.S. system).

As early as 1949 a form of accelerated cost allowance was introduced and manufacturing and processing firms were afforded a more generous allowance for a limited period in 1961 and again in 1973, with a particular focus on slow growth areas of the country. Also, a 3-year tax holiday was allowed for such firms in designated slow growth areas. In 1970 an investment allowance of 115 percent of the cost of manufacturing equipment and structures was allowed for depreciation purposes and limited to firms deriving two-thirds of their revenue from domestic manufacturing and processing activities. These measures may be characterized as being focused or limited to type of economic activity, geographical region, and fixed period of time with some marginal experience with tax holidays and limitation to beneficial Canadian ownership.

In the last decade, similar measures have retained their manufacturing and processing activities limitation (their nominal rate of tax reduced from 49 to 40 percent, January 1, 1973) and the accelerated capital cost allowance of a 2-year write-off, but have now become indefinite with respect to time. Further, the new investment tax credit of June 24, 1975, initially subject to a time limitation, has become extended indefinitely and differentiated by region (7 percent generally, 10 percent in DREE designated regions, and 20 percent in the Gaspé and Atlantic Provinces). The credit allowed against tax

¹⁰ Although the tax system has changed in recent years, the reader is directed to: Price Waterhouse & Co. and Price Waterhouse Associates, *A Study of Taxation Practices Related to the Pulp and Paper Industry*. Prepared for The Government of Canada, August, 1973.

payable is equal to the specified percentage of the capital cost of allowable assets (see sections 4000-4602 of the Regulations). The impact on the effective rate of taxation is subject to the limitation of the credit as found in Section 127 (5) of the Act. It should also be noted that a tax credit generally has a greater impact on cash flow than expensing.

Other Tax Measures

Amongst this group the tax incentives relevant to the forestry sector have been those centering on research and environmental improvement (particularly for the pulp and paper industry).

The other major tax measure was the Employment Tax Credit Act of 1978, notable in its contrast to capital stimulation i.e., the creation and acquisition of capital assets in the period, which expired on March 31, 1982. This tax measure was designed to stimulate the hiring of the unemployed by employers who created new jobs incremental to their normal work force. The tax benefit was in the form of a deduction from tax payable of an amount that varied with different regions (as delineated for the investment tax credit), specifically \$1.50, \$1.75, and \$2.00 per hour of incremental employment. Although this measure had the form of a tax credit, it should be called more correctly a wage subsidy as a secondary objective was to improve the employability of those so hired.

Employment tax credit has received little attention in the forestry literature, as has the whole question of labor in general, and will be examined in a later section on tax policy proposals.

The remaining tax of note is the manufacturer's sales tax on goods produced in Canada. The tax was formerly 12 percent on manufacturer's deemed selling price and was reduced to 9 percent in 1978. Also, building materials are taxed at the lower rate of 5 percent. Machinery and equipment used in manufacturing along with specified material supplies are exempt from the sales tax.

In summary, the federal taxing authority includes both direct and indirect taxes. The direct tax on income from forest properties has been examined in detail, with particular reference to the classes of forest property. Small business and corporate income taxes have been highlighted in general without particular reference to income derived from forest property. This is because nearly all tax incentives available to industries in the forestry sector (and for which tax expenditure estimates have been made) have been centered on the acquisition of certain capital assets, accelerated depreciation of same, and reduced nominal rates of tax. By contrast, the relevant areas of indirect taxation have only been noted.

The provincial area of taxation has been limited to direct taxes since the time of Confederation. It has further been characterized by a tax-sharing arrangement in the area of direct taxation in the post-war period. The following is a description of this arrangement:

Provincial Taxation

The taxes that have been discussed at the federal jurisdiction are for the most part found at the provincial level reflecting the tax-sharing feature of our multilevel public finance system. As with the federal level, personal income taxes will not be considered here.

The small business and corporate income taxes are most relevant to the forestry sector with the exception of the logging profits tax present in two provinces. Municipal taxes (property) are increasingly coming under the influence of provincial jurisdictions and are discussed later in the section. Succession duties, once of some significance, have largely been revoked (with the exception of Quebec) and are not considered here. Sales taxes, an important source of provincial revenues, are applied at the retail level and also are not considered.

Small Business and Corporate Income Taxes

These taxes are administered and collected by the federal government for all provinces with the exception of Quebec, Ontario, and Alberta. Quebec and Ontario not only administer and collect these taxes, but differ in their calculation of the tax base (taxable income), thereby rendering comparison of the provincial tax burden invalid for these two jurisdictions. In addition, Quebec also has capital and payroll taxes not found in the other jurisdictions. Alberta, however, employs virtually the same approach as the federal taxing authority.

Table 3 outlines the nominal tax rates on small business and corporate income taxes on income earned in each of the provinces. The federal government abatement of 10 percent of taxable income for provincial income taxes has allowed the provinces to exercise the "tax room" through rates of tax as provided under the Fiscal Arrangements Act.

The nominal rate of tax in Quebec was reduced from 13 percent in 1981 by the introduction of capital and payroll taxes; this had two interesting effects. The nominal combined rate of tax was reduced because the federal abatement and the federal tax base (and tax share) were reduced by the deduction of the capital and payroll taxes as "expenses" in the determination of income subject to federal tax.

Table 3 - Small Business and Corporate Income Tax Rates

<u>Province</u>	<u>Small Business</u>	<u>Manufacturing & Processing</u>	<u>Regular</u>
	%	%	%
Newfoundland	12	16	16
PEI	10	10	10
Nova Scotia	10	15	15
New Brunswick	9	14	14
Quebec	8 a)	8	8
Ontario	- b)	13 c)	14
Manitoba	10	15	15
Saskatchewan	10	14	14
Alberta	5	11	11
British Columbia	8	16	16
Federal	25	40	46
Less Abatement ^{d)}	-10	-10	-10

- a) The rate in Quebec will decline to 5 1/2 percent in 1983.
- b) Ontario has suspended small business tax for 1982 and 1983.
- c) Ontario has reduced the rate by 1 percent point for manufacturing and processing.
- d) The combined federal-provincial rate can be calculated for each type of business.

Further, the government of Quebec enjoys potentially increased stability of tax revenue by shifting a portion of the tax base from income to production.

A cursory examination of Table 3 suggests that there is no correlation between nominal corporate tax rates and the economic activity on the resource base in the forestry sector, with the possible exception of British Columbia. This has important implications to those provincial jurisdictions for their implicit strategy of developing the Crown forest resources. The implied strategy is one of providing stumpage at concessionary rates to induce private investment in wood conversion plants to create jobs and promote economic development. The consequent economic activity (and economic

surpluses emanating from the concessionary rates) would then be subject to an array of taxation devices. This is a reasonably sound strategy except that it fails to recognize the constructs of the tax system and the consequent sharing of the tax base by the two levels of political jurisdiction. This feature of the tax-sharing is given some qualified support in the limited empirical evidence which is examined in the following section.

The last two major kinds of taxation are the logging profits tax and property taxation. The former is something of an anomaly while the latter is of diminishing consequence in the forestry sector.

Logging Profits Tax

The provinces of Quebec and British Columbia are currently the only ones to levy a logging profits tax (with the first \$10 000 and \$25 000 respectively being exempt). At one time Ontario imposed the tax (in 1950, effective for 1949) at a rate of 9 percent when the provincial corporate tax rate was 7 percent. As this tax was deductible from federal taxable income, the result was a temporary decline in federal tax revenue on logging income. By 1952 logging income had become subject to the full federal corporate income tax and the logging profits tax became an additional tax liability. This was the consequence of the Tax Agreement (federal-provincial) for the period 1952-56.

The logging profits tax was introduced in British Columbia in 1953 at the rate of 10 percent of such profits (which was an additional 5 percent above that of provincial corporate income tax at the time).

The province of Quebec introduced the logging profits tax in 1954 (R.S. 1964 Logging Tax Act) and later incorporated it into the corporate income tax (Taxation Act, July, 1972. Ch. 22). On the other hand, Ontario repealed this tax in 1972, leaving only Quebec and British Columbia with the tax today at a rate of 10 percent.

The tax is fully abated against federal taxable income as provided by Section 127 (1) of the Act (see also part VII of the Regulations for definition). The abatement is equal to the lesser of $\frac{2}{3}$ of any logging tax paid to the province and $6\frac{2}{3}$ percent of the logging income from logging in a province for the year. The province also provides an abatement for the tax against its own corporate income tax. This generally means that the tax is fully abated at a level of 10 percent and acts as a revenue transfer from the federal to the provincial government. However, this was not the case for a time (prior to 1978) in British Columbia when the logging profits tax was at a rate of 15 percent, hence an incremental burden of 5 percent. Quebec has reduced the burden almost completely by a special credit.

It is difficult to understand the rationale of the logging profits tax, particularly the amendments to the calculation of logging income in 1957 in Ontario and British Columbia. Moore has hypothesized three reasons for the tax as being:

- i) a part of the purchase price of timber (a form of royalty),
- ii) an exercise of prior right-to-tax income produced by the exploitation of provincially-owned natural resources (which the federal government would not recognize in any event),
- iii) an anomalous departure from the uniform taxation of business profits (based on criteria of equity and neutrality and the one accepted by Moore).¹¹

The second hypothesis is interesting as it proved to be a significant source of conflict between the federal and provincial governments in their struggles to appropriate the economic rent of oil and gas resources over the last decade.

Municipal Taxation

Historically, the principle source of tax revenue for local government to finance municipal services has been the real property tax (real estate, land, including timberlands, and buildings). The basis of valuation (assessment) and rates of tax have varied considerably amongst municipalities, but over the last two decades, there has been a significant movement to standardize assessments on a provincial basis. At present, real property taxation at the provincial level is generally limited to Prince Edward Island and New Brunswick, and for unorganized municipalities in the other provinces. Property taxes today generally account for approximately 50 percent of local government revenue, (an exception is British Columbia where they account for about 70 percent of such revenue).¹²

Property taxation on private forest land is also subject to wide variation although its importance is diminishing.¹³ This has not always been the case, particularly in the Maritime Provinces where a significant proportion of forest land tenure is in private ownership.

11 For a complete discussion on the history of this tax, see Moore, *op. cit.*, p. 203-214.

12 Canada Tax Foundation, Toronto. *Provincial and Municipal Finances*, 1981.

13 This is not the case in a number of states in the U.S. where the property tax on forest lands has been the subject of considerable theoretical and empirical investigation.

The following discussion is essentially a highlight of a recent review of property taxation in Canada.¹⁴ A more recent study focusing on private forest land is available for those who wish to pursue this subject in greater detail.¹⁵ Assessment and taxation of forest land is described below for each province.

Newfoundland, Nova Scotia, New Brunswick, and British Columbia forest lands are taxed at statutory rates (or rates set by regulation). Managed and *bona fide* forest land is exempt in Prince Edward Island and Nova Scotia whereas all forest land in the prairie provinces is exempt from property taxation. Ontario is the only one which makes a direct grant (a rebate of 50 percent of total property taxes) to forest landowners who meet the necessary criteria for forest management (introduced as the Managed Forest Tax Reduction Program in 1975).

Newfoundland

Newfoundland is unique in that it has a separate assessment authority to administer forest land assessment. The Forest Land (Management and Taxation) Act, introduced in 1975, provides for the certification of managed forest land and taxation of those persons who derive benefit from trees or have the right to cut and remove them. Amongst other things, the fair market value of unmanaged lands and the "net present value" of the trees if the land is managed are required for assessment.

The basic land tax was 7 1/2¢ per acre in 1978 (a rate increase to 9.4¢ was under consideration at the time). Unmanaged forest land is subject to a tax of 5 percent of the fair market value of the growing timber, whereas managed forest land is subject to only 1 percent of the fair market value. Where either tax exceeds the basic land tax, only the difference is to be paid. In effect, the tax is a kind of lien on standing timber of merchantable size.

Prince Edward Island

Forest lands are assessed as noncommercial land, but no special provisions for their assessment are laid down in the Real Property Assessment Act. Forest lands managed in

14 F.H. Finnis, *Property Assessment in Canada* 3rd edition, Tax Paper 62, Canadian Tax Foundation, Toronto. 1979.

15 Canadian Forestry Association, *Taxation and Private Land Forests and Woodlots in Canada*, Report submitted to the Canadian Forest Service, Environment Canada, Ottawa. 1983.

conformity with standards established by the Department of Agriculture and Forestry are exempt from taxation. The provincial tax rate is currently 0.75 percent on noncommercial real property assessed at market value.

Nova Scotia

Forest lands may be assessed as resource or commercial property (the latter includes forest property owned by a person holding 50 000 acres or more of forest property in the province). Property used for *bona fide* forestry purposes is exempt from property taxation, but is subject to a tax of 25¢ per acre in lieu if classified as resource property and 40¢ per acre in lieu if classified as commercial. A *bona fide* forest property is one where intent of actual cutting or silviculture must be demonstrated. Where a fire protection rate is applicable, there may be an additional annual tax of up to 1¢ per acre.

A novel feature of property taxation is that in the event of a change in use, except to farm land, a change-in-use tax is levied equal to 20 percent of the value of the property. If the change in use results from sale of the property, the purchaser is liable for the tax. The Assessment Act provides statutory taxes for forest and recreational lands but not for other classes of property. Assessment administration is the responsibility of the province, but property taxation remains a local function.

New Brunswick

In 1976 the provincial government introduced an extensive reform of property taxation and municipal finance following upon the Report of the Royal Commission on Finance and Taxation, 1964. Real property may be assessed as freehold timberland and farm woodlots in that the *bona fide* use of the land must be demonstrated and is so determined by the Minister of Municipal Affairs. Freehold timberland is assessed at a statutory rate of \$60 per hectare while farm woodlots are statutorily assessed at a value that will realize a tax of 65¢ per hectare per year based on the combined provincial and municipal tax rate levied in the previous year or at their real and true value, whichever is less.

Quebec

Real property assessment at market value and taxation are the functions of local government. The annual amount of municipal real estate taxes levied on a farm or woodlot including houses or other buildings used for farm or woodlot purposes is limited to 1 percent of the taxable value of the property which, as regards the land, cannot exceed \$150 per acre.

On change of ownership, for purposes other than farming or forestry, the person who has benefited from the reduced taxation owes the municipality and the school board the excess of the real estate taxes, which would have otherwise been paid, for not more than five municipal and school fiscal years.

The Land and Forests Act provides for fixed assessments on reforested lands. As long as at least 300 trees per acre are maintained, reforested lands (except in cities, towns, and villages) retain for a period of 30 years the assessed valuation which they had before reforestation. At the end of 30 years, the assessment may be changed only every 10 years while the land remains under forest cover.

Ontario

The taxation of real property in organized municipalities comes under The Assessment Act but such property in unorganized municipalities comes under The Provincial Land Tax Act. Assessment is a provincial responsibility although taxation is a local function and is governed by The Municipal Act.

Forest lands in municipalities are assessed at their market value and "improvements," such as reforestation, do not increase their assessed value. Woodlands are lands that have been fenced, are not used for grazing purposes, and have at least 400 trees of all sizes per acre, or 300 trees of over eight inches in diameter, or as listed in the Act or in an Order-in-Council, have trees of some 21 varieties, which are at least four and a half feet tall.

Land used for forestry purposes on farms (i.e., farm woodlots) is exempt from property taxation to the extent of one acre for every ten acres of the farm up to a maximum of twenty acres of forest land for each farm under single ownership in a municipality. Farmland exempted from taxation because of its forestry use may be subject to full or partial taxation at local council's discretion for up to 3 years in the past if it ceases to be used for forestry purposes.

Since 1973 a tax relief grant equal to 50 percent of total property taxes has been paid to all eligible farm and managed forest property owners. The managed forest tax reduction program seeks to reduce the effect of higher assessment values of forest lands as compared to farmland. The program is administered jointly by the Ministries of Natural Resources and Intergovernmental Affairs. The tax grants, heretofore not subject to income tax, became part of taxable income in 1981.

Manitoba

Municipalities in Manitoba are governed by the Tax Municipal Act for taxation. No special consideration is given to forest lands with the possible exception of farm woodlots where buildings used for the purpose of growing nursery stock are exempt from taxation.

Saskatchewan

The assessment function is controlled by The Urban Municipality Act and The Rural Municipality Act. The Education Act provides for the levying and collection of school division taxes. Fixed assessments are prohibited except for farmlands, and then such lands must be used exclusively for farming. There is no special consideration for forest lands.

Alberta

Assessment and taxation in Alberta are local responsibilities but the province has assumed considerable authority under The Municipalities Assessment and Equalization Act. There is no special consideration for private forest lands.

British Columbia

Since 1977 all real property assessment matters have been dealt with under the Assessment Act, with the exception of Vancouver. All municipalities are authorized to levy property taxes under the Municipal Act. The Public Schools Act authorizes school districts to impose taxes on real property as well. Municipalities may levy a uniform rate on differential assessment, which results in a lower tax load on residential properties than on industrial and commercial properties.

Forest land is assessed at 40 percent of current actual value and tree farm lands at 80 percent of such value.¹⁶ Timber is assessed (and taxed) as part of the property value. Taxation is levied under the Taxation Act on the assessed value of all real property at statutory rates as follows:¹⁷

Rural, forest, and tree farm lands	1	percent
Wild lands	3	percent
Timber lands	1.5	percent
Farmland	0.5	percent

¹⁶ See following page for a definition of forest land which is otherwise used throughout the report in the conventional generic meaning of the term.

¹⁷ The major component of municipal taxation currently is the school tax as authorized by the School Act.

The classes of forest properties are defined in the Taxation Act as follows:

i) Forest Land

A unique statutory class of land, representing the old temporary tenures of the right to harvest timber without alienating title to the land, originated in a Land Ordinance in 1865. Over the period to 1907 there evolved from the original Timber Leases a number of forms of similar tenure known as Timber Licences (1888). Collectively, these form the old temporary tenures which are unique in that they confer on the holder the right to a single harvest of standing timber and in which the Crown has an increasing financial interest (initially none in the first Timber Leases). Since 1907 timber cut from these old temporary tenures has been subject to provincial export restrictions.

ii) Timber Land

A class of private land resulting from Crown grants originating before and continuing for a time after British Columbia entered Confederation in 1871. The Assessment Act defines this class to mean land west and east of the Cascade Mountains supporting minimum volumes of 94 and 59 m³/ha respectively and held specifically for timber harvesting.

iii) Tree Farm Land

Land that is included in Taxation Tree Farms resulting from preferential property tax treatment given to those owners of Crown-granted forest lands since 1951 to manage them according to sustained yield criteria. The Act defines such land as having its best economic use under forestry in areas where its highest use might be for some other purpose.

iv) Wild Land

Private land that may be called "unmanaged" forest land insofar as it does not qualify to be included in the above classes. There is an incentive to manage or improve these lands because they are liable to a higher rate of property tax.

v) Improved Land

A residual class of private land that does not fall under any of the above categories or other class of land, of which only a small portion carries standing timber.¹⁸

¹⁸ The Royal Commission on Forest Resources. *Timber Rights and Forest Policy in British Columbia*. Vol. I, ch. 13. 1976. This class of land is now called rural land.

A person who holds a timber lease or licence from the Crown or who owns timber land must annually submit to the Assessment Commissioner a detailed return on the forest activities (e.g, volume of timber harvest by species and volume of remaining standing timber) as well as the most recent timber cruise report.

An owner may have his land classified as tree farm land upon receipt of a certificate from the Minister of Forests that the land fits the definition of tree farm land in the Assessment Act, i.e., minimum stocking requirements, an approved reforestation program, or such stocks of mature timber which will be harvested on a sustained yield basis. Further, those forest lands included within Tree-Farm Licences are exempted from property tax.¹⁹

Under the Municipal Act and Taxation Act, forest and tree farm lands are taxed at statutory rates of ten mills and timber lands at fifteen mills.

Summary

These brief highlights reflect the various charges that municipalities may levy on timber and/or forest land. Not surprisingly, they reflect the relative share or importance of private forest land relative to that held by the Crown. It can generally be said that preferential treatment is afforded forest land in the eastern and central provinces (where private forest land in areal and annual harvest volume terms is significant), no preferential treatment is granted in the Prairie Provinces, and a notable burden is present in British Columbia despite fiscal incentives to manage private forest land on a sustained basis.²⁰

It is not for lack of investigations into the economic effects of the property tax that a definitive statement cannot be made in the Canadian context. Rather a host of factors come into play in the growing and selling of stumpage that mitigate against the conclusions of examining the effects of property tax in isolation. These are examined in Section V under the general heading of incentives to invest in forestry.

Thus, having reviewed the major types of taxes that have some import to the forestry sector, it remains to complete the picture by examining the relevant tax revenue and tax expenditure data.

19 For a comprehensive review of property tax on forested lands, see The Royal Commission on Forest Resources, *op. cit.* Vol II, App. C.

20 *Ibid.*

Addendum

In the introduction to this section it was noted that the description of the tax system was referenced to that in place in 1982. There have been, however, a number of changes over the course of writing this report that have been made into law (Bill C-139 incorporated proposals contained in the budgets of November, 1981 and June, 1982 and Bill C-2 contained proposals of the April, 1983 budget). These changes, which now amend relevant sections of the Income Tax Act previously described in this section, are briefly tabulated below and are by no means exhaustive. They further indicate the difficulty of attempting a timely description of tax legislation relevant to the forest sector much less a cursory assessment of their likely impact.

Measures Affecting CorporationsEffective Date

- | | |
|--|--|
| 1. Full write-off of capital cost allowances in year assets are acquired reduced to one half (same requirement for unincorporated small businesses). | Acquisitions after budget night
(November 12, 1981) |
| 2. Extend corporate surtax for 1982 and 1983 at 5 percent and 2 1/2 percent rates. | 1982 |
| 3. Increase income qualifying for low small business tax rate. | 1982 |
| 4. Loss carry-overs may be carried back 3 years and forward 7 years for 1983 and subsequent tax years. | 1983 |
| 5. Restricted farm losses may be carried back 3 years and forward 10 years for 1983 and subsequent tax years. | 1983 |

Measures Affecting CorporationsEffective Date

- | | |
|--|--|
| <p>6. Investment tax credits earned after April 19, 1983 may be fully deducted from federal tax payable without regard to limitation on taxes in excess of \$15 000. Credits earned after April 19, 1983 may be carried back 3 taxation years (but in no event to a taxation year before 1981) and may be carried forward for 7 taxation years (credits earned before April 20, 1980 may not be carried back and will continue to qualify for a 5 year carry-forward).</p> | <p>After budget night
(April 19, 1983)</p> |
| <p>7. A portion of investment tax credits earned in the period commencing April 20, 1983 and ending April 30, 1986. The stipulated percentage is 40 percent for most Canadian controlled corporations, individuals and certain trusts (20 percent for all other taxpayers).</p> | <p>After budget night
(April 19, 1983)</p> |
| <p>8. In addition to number 3 above, the Budget of February 15, 1984 proposes to eliminate the cumulative income limitation of \$1 000 000. The low small business tax rate would be available on up to \$200 000 of active business income a year earned by any Canadian controlled private corporation.</p> | |

III TAX EXPENDITURES IN THE FORESTRY SECTOR

Recent estimates of direct expenditure by various levels of political jurisdiction in the forestry sector and comparison with forest sector tax and nontax revenues have served as a backdrop to increasing concerns for an expanded and systematic forest renewal in Canada.¹ However, the picture would not be complete without the consideration of tax expenditures (equivalent to direct expenditures) which ordinarily are excluded from government expenditure budgets. Tax expenditures are indirect expenditures in that they represent tax revenues foregone because of preferential tax treatment of certain economic activities or the income of certain factors of production, i.e., deviations from a normative tax system. Conversely, tax expenditures can be "negative" in that they impose higher taxes than otherwise would be generated through a normative tax system, and are used to modify certain taxpayer behavior. Collectively they are also known as "tax incentives."

Tax expenditures are important because of efficiency and equity considerations in comparing them to direct expenditures as a funding mechanism for forestry renewal (See Section VI). There is also a general argument in the economic literature that tax expenditures should be substituted by direct expenditures as a better means of achieving social and economic objectives.²

The major sources of tax expenditures for taxpayers in the forestry sector are the preferential tax rates for small business and manufacturing and processing activities, and accelerated capital cost allowances for certain classes of capital property that figure prominently in wood conversion facilities. There are also several tax provisions that impact indirectly on the forestry sector, such as the Registered Home Ownership Program, which potentially raises the demand for building products. However, such indirect effects will not be considered here.

¹ See especially Environment Canada, *op. cit.* 1982 and Reed, *op. cit.*, 1980.

² For a summary view, see R.S. Smith, *Tax Expenditures: an Examination of Tax Incentives and Tax Preferences in the Canadian Federal Income Tax System*, Canada Tax Papers No. 61, Canadian Tax Foundation, Toronto. 1979. For a comprehensive description of the conceptual and empirical analysis of tax preferences in the federal tax system see, Canada, Department of Finance, *Government of Canada Tax Expenditure Account*, Ottawa, December, 1979, and an update with the same title in December, 1980.

The source of tax expenditures relevant to the forest industries are: exclusions (exclusion of one-half of capital gains and exemption of intercorporate dividends of Canadian corporations); deductions (deemed capital cost equal to 115 percent of actual cost and inventory valuation adjustment equal to 3 percent of opening inventory value); deferrals (deferral of tax on accrued capital gains, accelerated depreciation, particularly class 29 property, deduction of scientific research expenses); tax credits (investment tax credit, provincial logging tax credit, new employment tax credit); and preferential tax rates (small business deduction and tax rate, manufacturing and processing profits deduction). There are also negative tax expenditures (tax penalties) that are relevant, such as deferral of capital cost allowances, limitation on capital loss deductions, lack of inflation adjustments to capital gains, capital cost allowances, inventory values, and limitation to carry forward and backward operating losses.³ This latter group will not be considered here.⁴

The limited empirical information on the value of these tax expenditures are crudely estimated for each of the forest industries and the sector as a whole and compared to the manufacturing sector in Tables 4 and 5.

The period 1970-79 is reasonably representative for the forest industries, ranging from the trough of 1971 to just before the peak of 1981 and reflecting the recession of 1974-75. The cyclical nature of the industries is further amplified by the commodity characteristics of much of the sector's output. More importantly, the sector's response to the tax provisions of the last decade are quite marked.

Several of other characteristics of the sector may also be discerned. The portion of logging taxes paid by the logging industry is very small and illustrates indirectly the degree of vertical integration that has taken place in the sector. This, in turn, suggests that the tax base could be shifted forward to manufacturing and processing activities; particularly this could have been considered for firms in British Columbia when the rate of tax on logging profits was 15 percent or a net burden after abatement of 5 percent.

3 It has been argued that excluding one-half of capital gains and accelerating capital cost allowances are adjustments, albeit imperfect, for inflation.

4 For a comprehensive discussion of these and other tax expenditures, see Smith, *op. cit.*, 1979; limited empirical data on these tax expenditures is available in Statistics Canada, *Corporate Taxation Statistics* 61-208, various years.

The relative volatility of earnings in the sector, particularly for the wood industries, is evident when compared to the manufacturing sector in Table 5.

The actual tax rate of all industries in the forestry sector has been falling over the decade, especially since 1976 when the impact of tax credits began to be felt. It is suspected that the forest industries took particular advantage of tax credits in the latter half of the decade because of accumulated capital cost allowances (C.C.A.) and loss-carry-forwards (from the recessions of 1970-71 and 1974-75). Further, although capital-related tax credits require that such capital be deducted from the capital base for C.C.A., tax credits have a significantly greater impact on a firm's cash flow than deductions from taxable income.

The notion has prevailed that the tax burden requires a measure of tax-shifting to determine the ultimate location and, hence, burden of the tax. But increasing vertical and horizontal integration and international competition have largely precluded this to be an issue. Also, increasing domestic ownership has diminished the need to shift the sector's tax base by transfer pricing to jurisdictions of preferential tax.

As shown in Table 4 the trend of the federal tax share has consistently diminished over the decade. This simply reflects the impact of tax concessions, especially tax credits.

In Table 5, selected tax measures of the forestry sector (manufacturing activities) are compared to the manufacturing sector as a whole. A number of these, actual tax ratio, tax base and tax credit, suggest that the sector is bearing a lesser burden than manufacturing. Of particular note is the observation that the sector has gained over 17 percent *on average* of the estimated tax expenditures in the manufacturing sector over the decade. This figure is significant in that it is not approached by any other economic indicator when compared to the manufacturing sector and indicates a marginally preferential tax treatment.

To put these data in further perspective, it should be noted that provincial natural resource revenues in 1980-81 were only 12.7 percent of gross revenues. Of the natural resource revenues, the forestry sector only accounted for 6.8 percent by way of stumpage and related charges. Further, British Columbia accounted for nearly 85 percent of such revenues in 1979. On the other hand, revenues from liquor profits were nearly twice as important or nearly ten times as large after adjusting for British Columbia.

The provinces have clearly opted to tax the economic rents by way of income taxes than by direct user charges. They have further enjoyed an increasing share of these

diminishing (relative) taxes by way of federal government tax concessions. However, insofar as direct user charges reduce the tax base (being deductible as a cost of business), it appears the provinces would rather receive one-third of income tax revenues at the margin than 100 percent of the potential revenues from direct user charges. This suggests that stumpage fees have an importance that is more apparent than real.

In any event, tax expenditures by way of federal tax concessions, albeit nonspecific to the forestry sector, have been substantial and are a significant contribution to the financing of additions to wood conversion facilities in the country. It would seem that the provincial landlords meet this additional demand by way of commensurate supply from the resource base under their jurisdiction. Further, the federal government has an increasing interest in the continued competitiveness of this most important of natural resources as outlined in the recent policy statement on forest renewal and as provided by cost-sharing agreements.

Table 4 - Selected Taxation Statistics and Estimates
of Tax Expenditure¹ Forest-Based Industry Groups, 1970-79

A. Forestry (S.I.C. 031-039)

Item	Year									
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
	millions of dollars									
Book Profits Before Taxes	28.9	22.5	25.4	61.5	43.5	9.4	35.3	77.5	88.8	145.4
Deferred Taxes	11.9	0.2	1.1	2.4	1.5	2.3	-	2.4	6.6	4.3
Logging Taxes ²	1.8	0.8	2.0	3.6	2.3	0.2	0.2	1.0	0.5	0.9
Capital Cost Allowance (-)	36.8	35.1	36.9	52.1	56.6	70.9	70.7	76.0	101.5	116.9
Book Depreciation (+)	35.0	37.1	37.9	45.2	55.6	73.3	73.6	82.4	102.4	108.0
Net Difference ³	1.8	2.0	0.9	(7.0)	(1.0)	2.1	2.8	6.4	0.5	(8.9)
Taxable Income (Tax Base)	21.5	20.7	29.7	51.9	42.2	29.0	43.4	57.6	65.4	125.5
Total Income Taxes	5.9	6.0	10.4	19.3	16.0	9.9	12.9	16.7	18.3	39.1
Actual Tax Ratio ⁴	0.27	0.29	0.35	0.37	0.38	0.34	0.30	0.29	0.28	0.31
Federal Tax Share (%)	75	72	74	74	74	71	61	63	58	62
Tax Expenditure Base ⁵	7.4	1.8	(4.3)	9.6	1.3	(19.6)	(8.1)	19.9	23.4	20.9
Tax Expenditure (Base Effect)	2.0	0.5	-	3.5	0.5	-	-	5.8	6.5	6.5
Tax Credits ⁶ (Rate Effect)	-	-	-	-	5.1	4.5	6.5	9.0	11.9	16.7
Estimated Tax Expenditure	2.0	0.5	-	3.5	5.6	4.5	6.5	14.8	18.4	23.2

Table 4 - Continued

B. Wood Industries (S.I.C. 251-259)

Item	Year									
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
	millions of dollars									
Book Profits Before Taxes	(14.7)	(49.4)	186.8	473.8	186.5	55.7	209.2	392.5	741.3	862.9
Deferred Taxes	11.9	8.7	19.0	38.8	27.2	8.8	11.3	25.5	52.2	55.5
Logging Taxes ²	0.8	3.2	8.1	24.4	9.3	7.6	13.4	20.7	27.0	26.7
Capital Cost Allowance (-)	68.8	80.2	142.9	240.8	246.5	204.2	200.2	264.8	341.4	337.0
Book Depreciation (+)	71.6	79.0	107.6	141.0	164.1	171.2	198.4	214.3	225.2	242.6
Net Difference ³	5.0	(0.2)	(34.8)	(96.2)	(78.3)	(31.7)	(0.8)	(46.0)	(112.5)	(92.2)
Taxable Income (Tax Base)	39.3	69.3	162.6	340.7	182.9	149.9	245.4	327.3	554.8	693.2
Total Income Taxes	16.6	28.1	67.8	129.4	67.7	54.7	87.1	115.4	194.9	246.8
Actual Tax Ratio ⁴	0.42	0.40	0.42	0.38	0.37	0.36	0.35	0.35	0.35	0.36
Federal Tax Share (%)	74	76	77	73	71	71	67	68	65	65
Tax Expenditure Base ⁵	-	-	24.2	133.1	3.6	(94.2)	(36.2)	65.2	186.5	169.7
Tax Expenditure (Base Effect)	-	-	10.2	50.6	1.3	-	-	22.8	65.3	61.1
Tax Credits ⁶ (Rate Effect)	-	-	-	-	22.6	17.9	26.7	39.6	72.6	88.8
Estimated Tax Expenditure	-	-	10.2	50.6	23.9	17.9	26.7	62.4	137.9	149.9

Table 4 - Continued

C. Paper and Allied Industries (S.I.C. 271-274)

Item	Year									
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
	millions of dollars									
Book Profits Before Taxes	230.5	109.7	138.9	798.6	1337.9	847.9	607.0	620.6	1230.9	1630.5
Deferred Taxes	-	(16.1)	3.4	61.2	146.8	113.5	70.3	89.3	112.6	156.3
Logging Taxes ²	5.3	3.1	6.0	16.3	27.0	16.8	17.8	14.2	11.8	44.9
Capital Cost Allowance (-)	267.4	248.6	304.1	455.1	635.7	630.8	556.9	617.3	786.9	942.9
Book Depreciation (+)	255.1	261.4	260.6	283.9	313.9	339.6	388.3	405.7	438.2	550.9
Net Difference ³	(9.2)	13.4	(42.3)	(170.2)	(330.7)	298.7	(188.8)	(213.4)	(352.2)	(394.1)
Taxable Income (Tax Base)	146.3	124.2	151.5	359.7	744.4	381.8	375.1	400.3	644.1	1291.2
Total Income Taxes	73.6	57.8	69.3	146.5	304.9	151.0	142.1	145.5	236.9	459.5
Actual Tax Ratio ⁴	0.50	0.46	0.46	0.41	0.41	0.39	0.38	0.36	0.37	0.35
Federal Tax Share (%)	79	78	75	73	72	71	68	68	66	65
Tax Expenditure Base ⁵	84.2	(14.5)	(12.6)	438.9	593.5	466.1	231.9	220.3	586.8	339.3
Tax Expenditure (Base Effect)	42.1	-	-	179.9	243.3	181.8	88.1	79.3	217.1	118.7
Tax Credits ⁶ (Rate Effect)	-	-	-	-	66.9	33.8	37.2	44.7	75.5	166.0
Estimated Tax Expenditure	42.1	-	-	179.9	310.2	215.6	125.6	124.0	292.6	284.7

1. Tax expenditures are very crudely estimated by multiplying the reduced tax base (tax expenditure base) by the effective tax rate (actual tax rate) and adding the actual tax credits (rate effect) net of abatement for provincial corporate income taxes. A more rigorous approach would be to source and adjust each financial item as in Smith, *op. cit.*, 1979.

2. Logging taxes are abated to 10 percent with two-thirds of the abatement borne by the federal government.

3. The net difference may not add up due to expensing and capitalization of certain items for tax and book purposes. It is shown to demonstrate the effect on the tax base.

4. The actual tax ratio (sometimes called the effective tax rate) is the result of the composite effect of reductions to the tax base (both normative and concessionary) and the provision of tax credits and, hence, should be interpreted with caution.

5. The tax expenditure base is simply the difference between book profits and taxable income (tax base) and is an overestimate of base reduction. However, the resultant tax expenditure (base effect) is offset to an unknown degree by applying the effective tax rate.

6. All tax credits exclusive of federal tax abatement.

Source: Statistics Canada, Ottawa, *Corporate Taxation Statistics*. 61-208, various years.

**Table 5 - Comparison of Tax Expenditures
in the Manufactured Forest Products and Manufacturing Sectors**

Item	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
millions of dollars										
Taxable Income (Tax Base)										
Forestry ¹	186.0	193.5	314.1	700.4	927.3	531.7	620.5	727.6	1198.9	1984.4
Manufacturing	1967.8	2533.3	3220.5	4543.3	6254.3	5527.6	5211.2	5025.1	6342.7	9559.6
Total Income Taxes										
Forestry	90.2	85.9	137.1	275.9	372.6	205.7	229.2	260.9	431.8	706.3
Manufacturing	1184.4	1362.8	1560.2	1968.7	2613.6	2482.2	2328.2	2137.1	2603.8	3515.8
Actual Tax Ratio										
Forestry	0.48	0.44	0.44	0.39	0.40	0.39	0.37	0.36	0.36	0.35
Manufacturing	0.50	0.49	0.46	0.43	0.42	0.40	0.40	0.39	0.38	0.37
Federal Tax Share (%)										
Forestry	78	77	76	73	72	71	68	68	66	65
Manufacturing	77	76	75	73	73	73	71	70	69	67
Tax Expenditure Base										
Forestry	84.2	(14.5)	11.6	572.0	597.1	371.9	195.7	285.5	773.3	509.0
Manufacturing	500.5	884.4	1012.5	2093.4	2429.7	1476.2	1629.8	1968.2	3407.5	4610.8
Tax Expenditure (Base Effect)										
Forestry	42.1	-	5.1	223.1	238.8	145.0	72.4	102.8	278.4	179.8
Manufacturing	250.2	433.3	465.7	900.2	1020.5	590.5	651.9	767.6	1294.8	1706.0
Tax Credits (Rate Effect)										
Forestry	-	-	-	-	89.5	51.7	63.9	84.3	148.1	254.8
Manufacturing	-	-	-	-	524.5	567.3	446.8	448.3	639.2	1044.4
Estimates Tax Expenditures										
Forestry	42.1	-	5.1	223.1	328.3	196.7	136.3	187.1	426.5	434.6
Manufacturing	250.2	433.3	465.7	900.2	1545.0	1157.8	1098.7	1215.9	1934.0	2750.4
Forestry/Manufacturing (%)	17	-	1	25	21	17	12	15	22	16

1. Forestry is composed of Wood and Paper and Allied Industries for comparison to the Manufacturing Sector as a whole.
Source: Statistics Canada, Ottawa. Corporate Taxation Statistics 61-208, various years.

IV TAXATION ON THE FORESTRY SECTOR IN THE UNITED STATES

The most comprehensive examination of international tax systems (specifically Canada, United States, Sweden and Finland) in the industrial forestry sector was commissioned by the federal government in the early part of the last decade.¹ The study was in response to the forest industry's position that, amongst other things, the tax burden in Canada placed the industry at a competitive disadvantage in international markets where an overwhelming majority of the domestic output was directed. The study correctly pointed out that such international comparisons were indeed difficult at an industry level without acknowledging the social, economic, and political imperatives of each sovereign jurisdiction. Further, the study did not give much focus on the comparative tax systems treatment of primary forestry activities, i.e., the growing and selling of standing timber on private lands.

The following discussion will focus on this aspect in the United States and give a limited update on the treatment of corporate income for comparison to that in Canada. Only a generalized statement about relative tax burdens in the two countries can be made from describing tax laws, but this approach is felt to be more satisfactory than partial or limited analysis which is often misleading if broadly interpreted. Further, any attempt to systematically assess and quantify tax differences between Canada and another country would be formidable, given the lack of precision of the conventionally accepted criteria employed in tax design.

Comparison of the tax systems that apply to the forestry sector in the two countries can be brought into perspective by beginning with a very brief overview of the systems, starting with an examination of the aggregate level of taxes, composition of taxes by revenue source, and the political level of taxation (ranging from federal through provincial/state to local level).² Total taxes from all levels of government are approximately the same as measured as a share of gross domestic product (G.D.P.) in the two countries over the period 1972-77, with Canada being marginally higher (32 versus 30

1 Price Waterhouse, et al., 1973.

2 The overview is taken from a recent study; Canada Dep. of Finance, *The Tax Systems of Canada and the United States*. Ottawa. 1978, which described the systems in place to 1977. Subsequent discussions relevant to the forestry sector are updated to 1982.

percent). The trend though is significantly different in that there appears to be a decline in Canada and an increase in the U.S. The difference is largely attributed to indexation in Canada of taxable personal income, a major source of tax revenue. Additionally, there have been discretionary cuts in personal and corporate income tax rates, particularly the latter, in Canada over the period. Amongst industrialized countries, Canada is marginally higher than the U.S. and significantly lower than many Organization for Economic Cooperation and Development (O.E.C.D.) countries on a taxes to G.D.P. share basis.

The share of personal income, estate, and gift taxes of G.D.P. in Canada from the two senior levels of government has been almost constant. Indeed a federal decline in share has almost been matched by a provincial increase largely as a result of revisions to federal-provincial fiscal arrangements.

In the U.S., apart from a temporary decline in 1975, there has, and likely will be, an increase in the share of personal taxes due to the lack of indexation.

In Canada, corporate taxes have declined since 1974 because of discretionary cuts in tax rates and the decline in profits share of G.D.P. from a historical high in 1973. In the U.S. the share of corporate taxes has remained relatively stable and at a lower percentage of G.D.P. However, the effective rates of corporate tax are lower in Canada and this apparent contradiction is explained by the significantly lower share of corporate profits of G.D.P. in the U.S.

Both personal and corporate income taxes are relied on to nearly the same extent in both countries (45 percent in Canada and 48 percent in the U.S. of total revenues).

Although indirect taxes in Canada at the federal level declined in the early part of the period, they have since maintained a stable share of G.D.P. At the provincial and local levels, indirect taxes, including property taxes, grew in the latter part of the period due to discretionary rate increases and a broadened tax base in some provinces.

On the other hand, there has been a sustained decline in the share of indirect taxes in the U.S. at all levels of government. Such taxes in both countries tend to be heavily specific, i.e., fixed and discretionary amounts per unit of output and generally do not grow at the rate of G.D.P. The differential reliance on indirect taxes in the two countries is such that in 1977 they represented 38.7 percent of all tax revenues in Canada compared to 28.6 percent in the U.S. However, given that much of Canada's share results largely from the federal sales tax on manufactures and imports for domestic consumption, they do not have any significant effect on international competitiveness to export.

In both countries social security taxes have increased significantly over the period. In Canada there was a slight decline in 1977 at the federal level because of rate declines in both employee and employer unemployment insurance contributions. In 1977 planned rate increases in social security taxes in the U.S. meant a potentially greater share of G.D.P. For the same year the respective shares of G.D.P. that social security taxes represented in Canada and the U.S. were 9.0 and 19.7 percent.³

The last category of public revenues consists of a variety of tax and nontax items, such as hospital premiums, natural resource royalties, licence fees, fines, etc. In Canada this group has risen substantially because of increased provincial royalties on natural resources (largely oil and gas). On the other hand, this category has remained constant as a share of G.D.P. in the U.S. Further, resource royalties in the U.S. account for a very small share of public revenues, reflecting the considerable alienation of natural resources to private ownership.⁴

In summary, both countries appear to rely on personal and corporate income taxes at all levels of government to approximately the same extent (respectively 45 and 48 percent in Canada and the U.S.). But in Canada, indirect taxes are a far greater source of revenue than in the U.S. (38.7 and 28.6 percent respectively). The situation is virtually reversed with respect to social security taxes (9.0 and 19.7 percent respectively).

There are also significant differences between the two countries in the tax sharing or allocations of revenues to the different levels of government. In Canada, the federal government share of total revenues was 47.9 percent in 1977, compared to 63.6 percent in the U.S.⁵ Consequently, a comparative focus on revenue budgets at the federal level can be quite misleading. Further, the need for and difficulties in federal-provincial coordination are greater in Canada.

The differences between the two countries at the provincial/state and local government levels are striking, particularly with respect to their relative shares of

³ Given the growth in expenditures in this area due to the recent prolonged recession, significant changes may be expected in their tax share of G.D.P.

⁴ However, this pattern of tenure in the U.S. has historically generated considerable interest in the property tax and the income treatment of timber sales. These aspects are discussed later in this section and in Appendix II.

⁵ The reasons for fiscal sharing in Canada were outlined in Section I.

personal and indirect taxes. Personal income, gift, and estate taxes in Canada accounted for 26.7 percent of revenues at this level of government compared to 16.2 percent in the U.S. in 1977. Conversely, indirect taxes accounted for 50.2 percent of revenues in Canada compared to 67.5 percent in the U.S.

The differences in dependency on various tax devices for each level of government are important to a number of sectors in the national economy. The greater reliance on indirect taxes in Canada favor those sectors that have a high proportion of their output in export sales. The federal-provincial tax agreements also achieve a degree of uniformity in the definition of taxable income. At the same time the provinces can, and do, pursue their own levels of revenue and distribution of tax expenditures amongst individuals (through personal tax credits) and corporations (through lower rates on small businesses). In the U.S. there is greater diversity of taxation (both definition of base and rates of tax) at the state level that is not without significant cost to the taxpayers. Indeed, with respect to the property tax on forest land which is discussed later in this section, only a few selected states can be described because of this diversity.

This brief review serves to highlight the tremendous differences in the tax systems between the two countries. Subsequent examination of income and property taxes relevant to the forestry sector will focus on the major differences of the small business and corporate income taxes, and the item of greatest difference from Canada — the treatment of growing and selling timber as capital gain.

Taxation on the U.S. Forestry Sector

Substantial changes to the federal income tax were made by the Economic Recovery Act (E.R.A.) of 1981. A brief description of the system faced by the U.S. forestry sector before these changes serves to point out the contrast between them and those changes made in the early part of the last decade in Canada.

Unfortunately, the area of corporate tax is the most difficult in making comparisons between the two countries. Within a given sector, such things as company size, asset structure, and growth pattern may affect the burden of the tax and the value of tax incentives. Comparisons can be made for a specific investment project, but the results should not be generalized. Conversely, the tax burdens in the sector could be estimated for each country, but then would have to be standardized or adjusted for the factors mentioned above. One can only generalize from inspection of each country's tax laws and note the differences of tax treatment. Nevertheless, it is possible to make a general comparison regarding investments in the growing of timber, subject to the important qualification of the impact of the property tax in the relevant state.

The corporate tax systems in the two countries differ in many areas. The following description of the U.S. system is limited to highlighting major aspects as a comprehensive review is beyond the scope of this report. Significant differences in the Canadian system not covered in Section II are footnoted.

By way of introduction the major aspects of the corporate tax system are given in summary form before and after the Economic Recovery Act of 1981.⁶

<u>Provision</u>	<u>Prior 1981</u>	<u>Post 1981</u>
Corporate tax rate	17% on first \$25 000 20% on \$25 000 - \$50 000 30% on \$50 000 - \$75 000 40% on \$75 000 - \$100 000 46% on excess of \$100 000	15% on first \$25 000 18% on \$25 000 - \$50 000 same as prior 1981 same as prior 1981 same as prior 1981
Depreciation	No specific method prescribed. Asset lives generally determined by Class Life Asset Depreciation Range. Depreciation begins when an asset is "first placed in service." ⁷	Accelerated Cost Recovery System allows capital cost recovery over a shorter period. Generally 10-15 years for manufacturing machinery and equipment.
Capital Gains	Treated as ordinary income if asset is held for less than 12 months. Long term gains fully taxed at special alternate rate.	Rates have been lowered to a maximum of 20% on assets held more than 12 months.
Depletion	Cost depletion of standing timber when harvested. ⁸	Same
Inventories	Inventories may be valued on a LIFO basis.	Same
Net Operating Losses	May be carried back three years and carried forward for seven years.	Same carryback but may be carried forward for fifteen years.
Investment Tax Credit	A fixed percentage of investments for certain classes of property (depending on their asset life). Credit is limited to \$25,000 plus 70% of tax liability in excess of \$25 000. Excess credits may be carried forward for seven years. ⁹	Now is 6% on three year assets and 10% on all other assets. Credit is limited to \$50 000 plus 90% of the tax otherwise payable.

⁶ Summary taken from R.F. Conrad, *Tax Incentives in the Forest Products Sector*. Prepared for United States Treasury, Washington, D.C. 1981.

⁷ In Canada an asset may be depreciated when it is acquired and before it is in service at full annual rate.

⁸ Similar to capital cost allowances for timber limits and cutting rights in Canada.

⁹ Although there is no variation in the credit for the useful life of the asset in Canada, the credit will reduce the adjusted cost base for capital cost allowances in order to achieve neutrality between short- and long-lived assets.

The essential changes in the Act are the reduction in the rate structure for taxable income below \$50 000, the calculation of depreciation, the decrease in the maximum tax rate on long term capital gains, the increased limitation and the increased carry-forward of the investment tax credit, and the increased carry-forward for the net operating loss deduction. The intent of these and other changes in the Act was to encourage increased investment.

The states apply three types of taxes to business activities in the forestry sector. They are production or output related taxes, income taxes, and property taxes.

The output-related taxes are imposed by several states and are generally of two types, namely *ad rem* production taxes or *ad valorem* sales taxes. There is also considerable variation in the kind of products which are subject to tax and the level of tax. The variation in these taxes among the states reflects the importance of the resource in the state, the attitudes of the citizens, and the designated use of the tax revenues.¹⁰

Forty-five states levy income taxes on firms which operate within their boundaries and these taxes show considerable variation. They have also been the source of business concern and some litigation. The courts have repeatedly called for tax coordination and cooperation to be determined by the Congress.

The income tax practices amongst the states vary with the structure of the filing unit, the definitions or methods of calculating the tax base, and the method of income attribution (which may require separate accounting or use of a given formula). The consequence of a state's income tax may be difficult to assess.¹¹ Table 6 gives some indication of the variation amongst selected states in the southern U.S. The states that use federal adjusted gross income as a basis offer two federal incentives to investors, namely the long-term capital gains exclusion of 60 percent of net gain, together with the associated depletion allowance, and the reforestation amortization allowance (discussed later in this section). Of the states that use the federal basis for computing taxable income, only South Carolina excludes a part of long-term capital gains from tax. North Carolina allows landowners qualified to receive federal forestry incentive payments

¹⁰ See Conrad, *op. cit.*, 1981 for examples of these state taxes.

¹¹ See Conrad, *Ibid.*, 1981 for selected examples.

to elect to report income from timber sales either in the current tax year or over a 3-year period. Reforestation expenses may be deducted currently or amortized over 60 months. Five states exclude the amount of federal income tax from taxable income.¹²

The basic determinant of the significance of state income tax on timber revenue is the degree of exclusion of long-term capital gains. State income tax rates in the South are lower and generally less progressive than the federal rates.

Only North Carolina has preferential treatment for forestry investment through flexibility in computing taxable income and in minimizing state taxes for current and subsequent years.

This brief description serves to underscore the wide diversity of tax practices at the state level and the near impossibility to generalize on the impact these practices have on the forestry sector.

The property tax is generally the oldest type of taxation borne by natural resources. Although this tax is generally levied at the local government level, several state governments use it as well. Most taxing authorities levy the property tax on an *ad valorem* basis where timber and/or land is assessed at local fair market values. For a number of reasons this may result in a great variation in the tax burden between jurisdictions. Considerable effort at both the theoretical and empirical level has resulted in a modified *ad valorem* system in about 30 states that provides differential treatment for forest land. Also, the full spectrum of yield taxes, preferential rate and assessment, exemptions and rebates have been adopted, but with little apparent standardization among states.

A recent innovation adopted by at least 12 states and as an option, is "present use" assessment.¹³ Assessment is based on the present use of land and not necessarily on its highest and best use. If the use changes or the land is sold for other purposes, deferred taxes are levied relevant to the change in use.¹⁴ However, there is a certain "locked-in"

12 G.T. McGee, H.L. Haney, Jr. and W.C. Siegel, *How State Income Taxes Can Affect Forestry Investments*, *Forest Farmer*, February, 1983.

13 U.S.D.A. *The federal role in the conservation and management of private nonindustrial forest lands*. Interagency Report, Washington, D.C. August, 1977.

14 This is similar to that found in certain jurisdictions in eastern Canada. See Section II.

Table 6 Key Provision of State Income Tax Laws in the South.

State	Federal adjusted gross income used as tax basis	Federal income tax deductible	Proportion of long-term capital gains taxable	Comments
	Yes/no	Yes/no	Percent	
Alabama	no	yes	100	
Arkansas	no	no	100	
Florida	—	—	—	No income tax.
Georgia	yes	no	40	
Kentucky	yes	yes	40	
Louisiana	yes	yes	40	Allowable tax credit equal to 10 percent of federal credits.
Mississippi	no	no	100	
Missouri	yes	yes	40	
North Carolina ¹	no	no	100	
Oklahoma	yes	yes	40	
South Carolina	no	yes (limited)	50	Federal income tax deduction limited to \$500 per taxpayer.
Tennessee	—	—	—	Tax on interest and dividend income only.
Texas	—	—	—	No income tax.
Virginia	yes	no	40	
West Virginia	yes	no	40	

¹ Timber income may be reported in the year received or in equal installments over a 3-year period at the taxpayer's election. Reforestation expenses may be deducted currently or amortized over a period of 60 months at taxpayer's election.

Source: McGee, et al, *op. cit.*, 1983.

effect with this approach that may have undesirable spill-over effects upon other land uses.¹⁵

The last and perhaps most important aspect is the tax treatment of the disposition of timber as long-term capital gain. This feature is most often quoted when comparing Canada-United States taxation systems and is therefore deserving of closer examination.

The distinction between ordinary income and the increase in the value of long-term capital assets was made soon after Congress enacted a national income tax in 1913. Until 1922, there was no preferential rate on capital gains, after which it was applied at a lower rate on proceeds from stumpage sales of those not primarily engaged in the timber business.¹⁶

In 1944, Congress changed the law and treated all timber proceeds, including that of own harvest, as capital gain at differential rates ranging from 7 to 35 percent, depending on whether the taxpayer was an individual or corporation. Further, an additional "minimum tax" assessment was made on gains greater than \$50 000. For individuals, an exclusion of 50 percent (60 percent after 1978) of such gains was granted whereas corporations were taxed, albeit at lesser rates, on the full gains. Also, after 1978 the top rate was reduced from 35 percent to 28 percent and the minimum tax assessment was reduced from 7 to 5.6 percent. As part of the E.R.A. of 1981 the rate for individuals was further reduced to 20 percent. Basically, this treatment of timber sales and own harvests has remained in effect since 1944 despite several legislative challenges.

The other significant feature is the restriction as to what operating costs associated with the timber enterprise may be expensed and what may be capitalized. Although initially restrictive, there has been a gradual erosion of the capitalization of expenses in favour of current expensing. This mismatching of income and expense permits a conversion of ordinary income into capital gains.¹⁷

15 For a comprehensive review of the property tax in selected states, see H.L. Haney, Jr. and J.E. Gunter (eds.), *Proceedings of the Forest Taxation Symposium*. Virginia Polytechnic Institute and State University, Blacksburg, VA. FWS-2-78, 1978.

16 This is similar to the exception in Canada where stumpage sales would otherwise be taxed as ordinary income.

17 *The Outlook for Timber in the United States*, U.S.D.A. Forest Service, Washington, D.C. 1974.

The underlying reason for this preferential treatment by Congress was the mounting concern over the depletion of timber on private lands up to that time. This has been "proved" correct by the subsequent reversal of that trend and the increased expenditures on timber growing, particularly private land planting.

Given that approximately 72 percent of commercial forest land is held under private tenure (59 percent nonindustrial and 13 percent corporate), there is little wonder that such treatment has been vigorously defended and successfully withstood legislative change.¹⁸

It has been estimated that the capital gains treatment of timber resulted in federal tax expenditures of \$215 million in 1976 (\$155 for corporations and \$60 million for individuals). This tax expenditure almost equalled 50 percent of the fiscal 1976 budget of the U.S. Forest Service. Further, in 1971, the five largest corporations accounted for 53 percent of the corporate long-term capital gains taxed at the 30 percent alternative rate (at that time) and almost 40 percent of the benefit to all individuals and corporations.¹⁹

It should also be noted that small corporations with net income of less than \$50 000 do not benefit from the capital gains as their normal rate of tax is less than the alternative rate for net long-term capital gains.

Similarly, individuals with high incomes receive considerably greater benefit in terms of after-tax income improvement than do low or middle income individuals.²⁰ This is rather curious because the capital gains treatment is often justified as necessary to allow small forest landowners to remain in business. It would seem that to be more effective, the capital gains treatment should be limited to individuals, subject to capping at some upper limit consistent with stumpage price movements over time. This procedure coupled with expensing of forest management activities against income would provide a direct incentive to farmers and woodlot owners, and was the essence of President Kennedy's recommendations in 1963.

¹⁸ U.S.D.A. Forest Service, *op. cit.* 1974.

¹⁹ E.M. Sunley, Jr., *Capital Gains Treatment of Timber: Present Law and Proposed Changes*, J. For., February, 1976, pp. 75-78.

²⁰ A similar result is found in Canada for those individual taxpayers with access to capital gains.

An additional feature of the capital gains tax is that long term is defined as assets held longer than one year and applies also to the increase in value of public timber from the time it is purchased to the time it is cut. It would seem more appropriate to induce good forest management through regulation and stumpage pricing than the tax system in such instances.

A more direct incentive to reforestation activities was introduced late in 1980 in the form of an investment tax credit. The credit is for 10 percent of qualified forestry investments plus 7-year amortization on the first \$10 000 of capitalized reforestation expenditures each year (i.e., the cost is subtracted from gross income over a 7-year period). Qualifying expenditures are direct costs of planting or seeding including site preparation, seeds and seedlings, and labor and tools including depreciation on equipment (if the equipment does not otherwise qualify for the investment tax credit.)²¹

In addition, certain carrying costs such as interest charges and property taxes can be elected for capitalization. Amortization deductions for reforestation costs will be subject to recapture as ordinary income to the extent of the gain if the timber is disposed of within 10 years.

The incentive also provides the additional feature that payments under the Forestry Incentives Program (FIP) made with respect to capitalized reforestation expenditure need not be included in gross income. Prior to 1978, taxpayers were required to include FIP payments in their gross income and this was thought to discourage some taxpayers from participating in the program.²² The program provides for cost-sharing between private landowners and the federal government for tree planting and timber stand management expenditures. The federal share of these costs ranges from 50 to 75 percent depending on the cost share rate set in the landowner's particular state and county by the Agricultural Stabilization and Conservation Committee.²³

The final tax aspects that should be mentioned are the estate (death) and gift taxes, which are held to be obstacles to longer term interest in forest management. The federal

21 Condrell, W.K. *Landmark Legislation Provides Forestry Investment Tax Credit*. *Forest Farmer*, November-December, 1980, pp. 8-10.

22 This is an unusual exception insofar as such benefits in the U.S., unlike Canada, are generally not taxed.

23 The maximum cost-share was reduced from 75 to 68 percent by the E.R.A. of 1981.

estate tax was introduced in 1916 and gift taxes came later in 1932. They were later merged and combined credit and equal rates were established. This combined tax remained unchanged for the most part until 1976 and the burden was substantially reduced by the E.R.A. in 1981.

The lifetime credit for the unified estate and gift tax was increased from \$175 625 to \$600 000 and the maximum rate on transfers was reduced from 70 to 50 percent. Spousal transfers were allowed to be unlimited compared to the previous provision of the lesser of one-half of the estate and \$250 000. The interesting feature for forest landowners is that standing timber may be valued as "qualified woodlands" for special use valuation as opposed to highest and best use.

In summary, the tax system in the forestry sector in the United States at the federal level parallels that of Canada. The calculation of tax base and the prevailing tax rates appear to be more generous in Canada. The single distinguishing difference is the capital gains treatment of the proceeds from the sale or harvest of standing timber in the U.S. The benefit of this treatment in present value terms would depend on the taxpayer's marginal tax rate and alternate rate of return.

At the state and local government level, the situation is certainly less clear and may be essentially characterized as lacking any measure of horizontal equity to the taxpayer owning forest land. The diversity of tax approaches found in the states makes it extremely difficult to categorize them. Several states in the southern U.S. were selected for a brief description of their tax systems as they represent a region of extensive private forestry activity. As already noted, the preceding description of the tax system suffers from the broad generalizations that arise from a reading of tax laws.

V TAXATION AND FORESTRY INVESTMENT DECISIONS

There are many reasons why individuals acquire and hold forest land in fee simple title as several landowners surveys in eastern Canada have revealed. Similarly, public forest land can meet a variety of consumptive and nonconsumptive needs of the public. This section focuses on the decisions to invest in primary forestry with respect to the incentives and disincentives *perceived* to be in the tax system. This examination is undertaken in the context of the recent federal policy statement on forestry renewal.¹

The problem of private investment on public forest land has a much less clear relationship to the tax system. Industrial firms have limited property rights (through negotiation or competitive bidding) conferred by the Crown for a predetermined period of time which are generally subject to renewal or extension. It is held that unless individuals and corporations have some equity in the future crops arising from current capital investments on public forest lands, the potential for tax incentives to induce forest renewal activities will simply not exist. This is not to suggest that such a potential is impossible to attain, but rather to underline the need for a change from the traditional perspective of landlord-tenant responsibilities for timber production and renewal on public forest lands. The basic approach of public regulation of private commercial activities is felt to be correct, particularly with respect to recent policy developments concerning management responsibilities of forest renewal. Proposals to enhance the shift of increased private sector activities on public lands, and to a lesser extent on private lands, are submitted in Section VII for examination and possible study.

The current state of knowledge of private forest landowner behavior, especially those aspects relating to commercial activities, is such that one is not able to ascribe to the tax system any positive or negative behavior patterns. Further, positive and negative behavior implies a value judgement relative to some generally accepted normative principles of natural resource exploitation. Much of the negative comment emanates from public agencies who, being free of economic pressures, turn their timber capital over at a slower rate than that on private land. Gaffney submits that small private owners

¹ Environment Canada, *op. cit.*, 1982.

subject to material property taxation have met these economic pressures by practicing leaner, more economical management.²

It is nonetheless instructive to examine the limited studies on private forest landowners which reveal how they acquired their property, when they acquired it, and with what objectives in mind for its use. These characteristics are given to highlight the following perspective of landowner behavior and the tax system.

The studies in question were published in Ontario (1970 and 1981), New Brunswick (1983), and Nova Scotia (1972 and 1981). At the risk of generalization, the studies in aggregate indicate that 30 percent acquired their property by inheritance and more than 50 percent through purchase, nearly one-half of the properties were acquired over the last decade, and nonfinancial or noncommercial objectives predominated (with the exception of farm woodlot owners).

Commercial timber production as the sole or primary reason for owning the forest property accounted for only 2-5 percent of the owners. However, a significant proportion (25-40 percent) indicated they had sold forest products over the past 5 or 10 years with industrial (sawlogs and pulpwood) and nonindustrial (firewood) products reflecting regional importance. The major reasons generally given for not cutting forest products were those of being too busy with other activities and acquiring the property for other purposes, particularly harvesting timber for own consumption.

The high rate of property turnover in the last decade, the desire to acquire more property, and a relatively younger, better-educated class of buyers, plus the mention of financial investment of 40-50 percent of owners, would seem to support an hypothesis that the major underlying reason for acquisition may simply be a hedge against inflation with a concurrent noncommercial use objective.

A recent study in Ontario neatly sums up the landowner surveys done in that province.³

² M.M. Gaffney, "An Overview of Forest Taxation". In H.L. Haney, Jr. and J.E. Gunter (eds.), *Proceedings of the Forest Taxation Symposium*, Virginia Polytechnic Institute and State University, Blacksburg, VA. FWS-2-78, 1978.

³ Ontario Ministry of Natural Resources, *op. cit.*, undated.

"What emerges from the responses is an indication that the woodlands on a property are viewed both passively and as a desirable component that comes with the land which, periodically, may bring the owner some revenue either directly, through the sale of forest products, or indirectly when the owner cuts wood for his own use."

Provincial public agency assistance for small nonindustrial forest landowners in eastern Canada has been significant, especially since World War II, and largely centered around advisory services (education and technical information programs). Over the last two decades an increasing form of assistance has come from direct expenditures as a subsidy to certain silvicultural activities and, in one instance, as indirect or tax expenditures assistance.⁴

A common perception of these private lands is that, amongst other things, "land values were relatively low, and annual revenues even lower."⁵ There is, of course, no published empirical information to support this perception. A crude estimate of gross revenue may be derived from the 1981 Census of Agriculture for Farm Woodlots (1980 reference year) and for Crown lands in 1979 from the work of Reed and Associates.⁶ The gross revenue per acre for farm woodlots was \$7.41 while the corresponding value for Crown lands was \$1.78. This suggests a considerably higher level of commercial activity on farm woodlots and does not include the almost equal values of forest products for own consumption. Further, given the extreme differences of economic pressures of holding private and public lands, this differential is hardly surprising. What remains unknown is the net cash flow position of private forest landowners. The literature on private land forestry is conspicuously mute on this aspect.⁷

On the other hand, this same literature is notably replete over the past several decades on the impending shortages of industrial wood supply because of poor cutting practices, low inventories of standing timber, short rotations, low stocking levels – all

⁴ For a comprehensive review of these assistance programs, see Ontario Ministry of Natural Resources, *Ibid.*, and Madigan and Jones, *op. cit.*, 1980 for a description of these assistance programs.

⁵ Madigan and Jones, *Ibid.*, 1980.

⁶ Reed, *op. cit.*, 1980.

⁷ See P. Berck, *The Economics of Timber: A Renewable Resource in the Long Run*. The Bell Journal of Economics. Vol. 10, No. 2., pp. 447-462 for a particularly interesting study on the implicit discount rate of private forest landowners which he found to be lower than other private investment returns. This suggests they do not "overcut" their timber stocks.

indicators of "poor" forestry practices. Public agencies involved in private land forestry extension services have increasingly expanded their programs of assistance from dissemination of technical advice to more direct (access to subsidized growing stock, credit, and marketing organizations) and indirect (property tax rebates for managed forest lands and preferred "in-use" rates of property tax) assistance. It is not clear whether such assistance reflects a cash flow problem for current forest landowners or whether their perception of the returns from more intensive forest management are below their alternate rate of return. There is little that the tax system can do in the former situation except to facilitate the transfer of forest property to those with sufficient income/interest to pursue timber production activities. The exception to this rather general statement is the potential impact of tax credits which have a more positive effect on cash flow than an equivalent dollar amount of deductions. Such credits would likely have to be capped to preserve any notions of vertical equity.⁸

With respect to the latter situation, the tax system has little to offer toward improving after tax rates of return. Indeed, the tax system may be characterized as being mildly anticompetitive, i.e., it presents certain obstacles to first-time entrants to commercial forestry activities brought about by the limitation of the amount and carry-forward of initial losses, particularly against other sources of income.

The long period of production in growing timber is simply not recognized other than for a "going concern" such as a farm with a woodlot or an industrial forestry enterprise. With these commercial organizations, forestry investments may be expensed as a cost of doing business. Farmers, however, are subject to a restriction of losses and where the woodlot receipts are large by comparison to farm receipts the former may be treated as ordinary income rather than capital income when it is incidental to farming.⁹ Owners who are neither in the business of farming nor operating forest lands as part of a full-time business activity are given the least explicit treatment as to their tax liability.¹⁰ This uncertainty is sufficient to deter entry into this kind of operation. Apparently the taxing

⁸ This aspect is explicitly recognized in the recent forestry investment tax credit in the United States as briefly described in the previous section.

⁹ For more complete description of this issue, see Canadian Forestry Association, *op. cit.*, 1983.

¹⁰ In this connection, recall the classes of forest property, particularly the "forest planting" class.

authority has not yet recognized that the nonfarm category of nonindustrial private forest landowners has reached a predominant position because it applies the restricted farm loss provisions to intensive forest management expenditures by this group. Further, this uneven treatment results in a discrimination between even-aged and all- or uneven-aged timber management insofar as the latter would at least, in theory, offer legitimate revenues against which expenditures on intensive forest management activities could be offset, albeit for a limited period of time.

The tax regulations would therefore suggest the following strategies of investment when acquiring forest land and/or timber capital. The optimal tax treatment would be received if a taxpayer acquired a forest property approximating a condition of a normal forest and he focused his management activities on adding to inventory, i.e., regeneration expenses. This strategy takes on the appearance of perpetuating a stock resource, which for the most part, would seem to be the bias of the taxing authority, particularly with respect to treatment of capital cost allowances.¹¹

A second strategy for taxpayers who have acquired an even-aged forest property with timber approaching maturity would be to focus on timber stand improvement, particularly if the treatments produce revenue in the interim period.

Those taxpayers who acquire forest properties, which do not meet the above conditions or who wish to "normalize" the existing age class distribution, would rationally capitalize the resulting tax burden (because of the temporal limitation of loss carry-forwards) into a lower demand price for their property. Sellers of such property, on the other hand, would refer to recent market prices, reflecting values other than commercial forestry, in determining their supply price. Further, sellers not active in the timber business and/or experiencing cash flow constraints to undertaking forest management expenditures would rationally liquidate the timber capital at the most propitious time and take a one-time capital gain. Subsequent sale of the bare land would reflect the capitalized burden of the restricted loss carry-forwards against other nonfarm income.

The conditions assumed above do not include nor would they apply to owners of forest nurseries or Christmas tree plantations, given the relatively short production periods involved and the fact they are recognized as "farming" operations by the tax authority.

¹¹ See again Section II on this subject.

For a taxpayer acquiring bare land with a view to afforestation and who is undeterred by the cash flow implications, there remains the problem of recognizing that the commercial maturity of the forest will possibly occur beyond his lifetime. This raises the issue of taxation of accrued capital gains upon the transfer of the property to a member of the surviving family other than the taxpayer's spouse (either as an estate or as a gift). Upon transfer, the property will become subject to capital gains taxation from the deemed disposition at fair market value. Relief from such taxation is available for farm properties including woodlots. Consequently, a taxpayer may successfully avoid the limitation of the restricted farm losses during his lifetime only to encounter the possibility of having to sell the property upon death or transfer it as a gift to meet the tax liability on the accrued gains.

In summary, the tax legislation is particularly deficient in recognizing the long production period associated with growing timber and the delineation of allowable costs (losses) of the predominant group of nonfarm and nonindustrial forest landowners. It would appear that the taxing authority has a considerable latitude of discretion by invoking the test of "reasonable expectation of profit" and applying the restricted farm losses to the taxpayer's disadvantage. With respect to the latter, a considerable improvement could be realized simply by raising the limited restrictions, which have been in existence for approximately three decades, to more realistic levels.

It should also be pointed out that relieving tax devices that afford preferential treatment to forest land may result in tax-induced changes, such as increased bid prices of such land and accelerated land turnover. Such changes may or may not be consistent with the relevant policy-maker's objectives.

Finally, the tax system is briefly examined with respect to private (industrial) expenditures on forest management activities on public lands. All such expenditures may be fully expensed as a cost of business, and where incurred, are usually the result of public agency regulation. This is correctly the result of conditions attached to leasing exploitation rights to public resources. It is also evident that the exercise of such conditions has been insufficient in terms of currently perceived future requirements for industrial roundwood. It has long been recognized that the absence of an equity claim to the future crops has precluded the private sector from making such investments, particularly in light of the gradual reduction in the lease period or complete elimination of traditional leaseholds in most jurisdictions. This would seem to only mitigate further

against such private sector investment possibilities.¹²

The recent trend to overcome this apparent inertia is a variety of negotiated forest management activity agreements as a condition of the lease. The prescribed silvicultural activities undertaken by the lessee are either directly compensated by an agreed upon fee schedule (much in the way of a service contract) or by offsets against the stumpage fees owing on the harvested crop. In either case, any net costs of direct or indirect compensation would be fully deductible as a current expense in the determination of taxable income. Under these arrangements, however, the private sector is essentially a passive participant with little or no market orientation to the investment decision.

Thus, without equity participation in the future timber crops, the private sector cannot be expected to make the necessary expenditures on public forest land under the inducements of the present tax system. Indeed, there is no *a priori* reason for the private sector to look beyond the term of their limited property rights viz their tax liabilities. The determination of future timber supplies should therefore be properly reflected in the pricing and regulation policies of the responsible public agency.

This dichotomy of mixed public-private forest land ownership would suggest that, *ceterus paribus*, a competitive advantage is conferred to public land because the tax burden is less. This in turn suggests that a reduction in the supply of timber from the private sector will affect the aggregate timber supply, assuming no compensatory increase from the public sector. The possibility of resources flowing from the private sector (reduction in forest land use and employment of other productive factors) would demonstrate a non-neutrality in the tax or taxes levied. This and other aspects of public-private land interdependence are alluded to in Appendix II and on which no significant study has yet been made. On the other hand, there have been significant instances of financial transfers between levels of government to fund forestry investments which are described in the following section.

¹² A possible solution to this problem is offered in Section VII.

VI MECHANISMS TO FUND FORESTRY INVESTMENTS

There has been a fairly long history of federal-provincial funding arrangements in a variety of sectors, including forestry. As noted in Section I of this report, the British North America (BNA) Act of 1867 conferred the ownership and control of natural resources upon the provinces (Manitoba, Saskatchewan, and Alberta gained control over these resources through the Natural Resources Transfer Act of 1930). As a consequence, the federal government was limited in the management and development of these resources to its areas of pre-eminent domain, such as external and interprovincial trade, foreign ownership, and fiscal (taxation only) policies. In the area of fiscal policy, direct expenditure in forestry activities was precluded and indirect transfers were the only avenue for federal participation. Therefore, in terms of direct expenditures, the initiative has rested with the provincial governments. The role of the federal government in the area of taxation has been described in Sections II and III of this report and represents a mechanism for indirect transfers of funds.

It has been argued that federal powers in the area of interprovincial and international trade of traded resources has yielded effective control to the federal level.¹ This particularly interesting thesis and its validity to the forestry sector is beyond the scope of discussion in this report.

This section will focus on the transfer of funds to support forest management activities on both public and private forest lands. Further, the efficacy of this procedure will be compared to general tax-inducing mechanisms on a national cost-effective criterion.²

The transfer of funds encompasses such funding mechanisms as direct transfers, direct reimbursement, cost-sharing, direct subsidies, and loans. In the forestry sector, the use of the cost-sharing mechanism has predominated since the Canadian Forestry Act in 1949. The Act allowed federal departments or agencies to enter into financial assistance agreements with the provinces.

1 S.I. Bushnell, *The Control of Natural Resources Through Trade and Commerce Power and Proprietary Rights*. Canadian Public Policy No. 6, Toronto, 1980.

2 For a comprehensive review of funding mechanisms, see Thorne et al, *op. cit.*, 1981, from which this discussion is extensively derived.

The first phase of composite agreements was begun in 1951 and was periodically supplemented by special agreements until 1967. Under the composite agreements the provinces had to financially participate to receive federal funds. The federal funds were allocated on the basis of productive forest area in each province. The rationale for this allocating mechanism is unclear. The activities that received the greatest support over this period were forest access, fire protection and control, and forest inventory (approximately 90 percent of federal funding). The residual activities encompassed nursery construction, forest regeneration, and stand improvement operations. The implicit priority was the exploitation and development of the forest resource base and characteristic of forest management at the extensive margin. In total, these activities resulted in federal expenditures of approximately \$64 million over the period. A further \$9 million was spent at the federal level for special bilateral agreements to meet a particular provincial need. Approximately 75 percent of this amount was spent for the spruce budworm spraying program.

Although initially these agreements were of a long-term nature and administered by the provinces (with the exception of the special agreements), they were gradually replaced, beginning in the early 1960s, by more flexible 2-year agreements until their termination in 1967. This was partly because an attempt was made to reduce apparently escalating federal expenditures.

This phase was unique in that it represented the sole experience of systematic support by the federal government to forest resource-based activities. The period from 1899 to the Natural Resources Transfer Act of 1930 may be characterized as the early development of forest protection and research with the latter representing the major support to the sector after 1930.

The second phase of forestry support from 1967-1974 might best be described as the early development of general economic assistance to reduce regional economic disparities. As such, support for forestry activities was more or less on an *ad hoc* basis. This support was provided under the Agricultural and Rural Development Act (ARDA) of 1962, the Fund for Rural Economic Development (FRED), and a few special agreements. Again, the projects that received the greatest support (approximately 75 percent of federal expenditures of \$27.5 million) were forest access, inventory, and forest protection. The support was exclusively directed to eastern Canada, particularly the province of Quebec.

A consolidation of these regional development efforts was achieved with the establishment of the Department of Regional Economic Expansion (DREE) in 1969. Given that the mandate of the department was employment creation and economic development, the scope of forest management activities that could be funded were likewise constrained.

The third phase of forestry support was begun in 1974 under the auspices of DREE with the conclusion of the 10 year General Development Agreements with the provinces. As of 1982, seven provinces had concluded agreements with variable cost-share proportions for each province (preferentially higher in the Atlantic Provinces). The initial federal funding of \$25 million in 1974-75 steadily increased to an estimated \$68 million in 1981-82. Of the approximately \$205 million federal contribution over the period 1974-80, 42 percent was allocated to forest access, inventory, and forest protection while nearly 37 percent was devoted to reforestation and stand improvement activities.

It is evident that the proportion of resources allocated to access, inventory, and protection has declined significantly over the three phases while silvicultural activities have grown dramatically in the last half of the 1970s. This is quite consistent with the changing perceptions of the status of primary forestry in the last decade. It is also evident that the support of primary forestry activities at the federal level has not been sustained over time and the preferred funding mechanism has been cost-sharing.

There are, of course, several programs of industrial assistance at the federal level that are funded through direct expenditure and loan guarantee mechanisms. The following selected programs are by no means exhaustive and up-to-date, but do illustrate the extent to which these other funding mechanisms have been employed.

The essential feature of these programs aimed at industrial assistance is that they have maintained and/or increased the industrial demand for timber that is largely supplied under provincial jurisdiction. For fiscal year 1979-80 such expenditures were estimated to be over \$200 million and encompassed a wide variety of programs.

The major contributor to these programs in recent years has been DREE under the Regional Development Incentives Program (RDIP) in general, and the \$235 million Pulp and Paper Modernization Program in particular (announced in 1979 and subsequently expanded to \$276 million in 1980). This latter program was directed to five eastern provinces in Canada, which themselves contributed \$241 million resulting in a combined funding of \$517 million. Agreements with the provinces involved took the form of cost-sharing arrangements and are scheduled to terminate in 1984 (with the exception of Newfoundland).

The programs of the Department of Industry, Trade and Commerce (now merged with DREE) were greatly restructured in 1977. The programs that provided assistance to the forest-based industries were the Enterprise Development Program (EDP) accounting for \$5.4 million in 1977-78, the Program for Export Market Development (PEMD) amounting to \$650 000 over the 1971-78 period; the Co-operative Overseas Marketing Development Program (COMDP), which was jointly funded by the British Columbia Ministry of Economic Development and Council of Forest Industries with a federal contribution of approximately \$5 million from 1976 to 1980 and projected to rise to \$10 million in the period 1981-85; the Industrial Research Council and its contributions of \$13.8 million between 1967 and 1978 which were cost-shared on an approximately equal basis with the beneficiaries; the Co-operative Pollution Abatement Research (CPAR) in co-operation with the pulp and paper industry that resulted in payments of \$13.8 million between 1970 and 1978; and the Demonstration of Pollution Abatement Technology (DPAT), administered by the Environmental Protection Service of DOE, which was a cost-shared program resulting in payments of \$2.8 million between 1975 and 1978.

In the field of energy, significant to the pulp and paper industry as the single largest industrial consumer, the Energy from the Forest (ENFOR) program is jointly administered by the Canadian Forestry Service and the Department of Energy, Mines and Resources with initial funding of \$30 million for the period 1978-83; and the Forest Industry Renewal Energy (FIRE) program, administered by EMR, with funding of \$103 million for the same period.

Labor is served by the Canada Employment and Immigration Commission to facilitate a variety of adjustment problems through the Canada Manpower Consultative Service (CMCS), the Canada Manpower Industrial Training Program (CMITP), and the Canada Manpower Training Program (CMTP).

Exports, of particular importance to the forest industries, have been assisted for some time by the Export Development Corporation (EDC) through the provision of such financial facilities as insurance, guarantees, and loans. In the period 1946-75, exports of forest products to the values of \$1.9 billion were insured.³

³ For a more complete review of these programs, see Canada, Industry, Trade and Commerce. *Review of The Canadian Forest Products Industry*, Ottawa, 1979.

This brief reference to forest industry assistance programs simply serves to highlight both the latitude of federal direct support (as contrasted to the indirect support of forest management activities) and the funding mechanisms employed, which range from discretionary grants to loan guarantees. Again, for several programs, the cost-sharing mechanism (federal shares ranging from 20 to as high as 100 percent) was a favored mode of delivery.

The cost-sharing mechanism is favored insofar as the conditionality aspect satisfies federal self-interest in the programs to be funded and requires provincial participation to an agreed-upon share. For its part, a provincial government may view it as a supplement to its available budgeted resources for program expenditures. Further, such a mechanism is outside the taxation system of both levels of government.

The programs to be financed under this mechanism, however, must enjoy the same order of priority between the two levels of government and, in the instance of forest management, may require sustained support over the longer term. These two features were the most serious shortcomings in previous cost-sharing mechanisms. Also, where significant proportions of the forest land are held under private tenure, this mechanism is particularly limited in cost-effectiveness, although it may indirectly support the direct subsidies aspect of provincial forest extension programs.

Nevertheless, with approximately 400 000 private forest landowners in Canada (and nearly half of them in Ontario), the cost-effectiveness of any direct expenditure mechanism could be expected to be low. But, this may be justifiable if some conditional "need" of a specified target group of forest landowners figures largely in the objectives of provincial forest extension programs. As noted in Section V, it is not at all clear if the owners are constrained from making forestry investments by cash flow problems or by inadequate after tax rates of return. The tax system can do little about the former but may offer material incentive if the latter situation prevails.

It is often alleged that the tax system lacks the capability to "target" the group deemed to require assistance and to control the kinds of forest management activities deemed necessary or desirable by the relevant public agencies. Yet, it could be argued that those with cash flow problems should not be a target group for public assistance in any event. Further, given the rate of land turnover noted in the previous section, the potential incentives of the tax system may be attractive to those owners willing to incur debt or have surplus resources for forestry investments.

The use of tax expenditures has important implications to both senior levels of government. Tax expenditures are generally of two kinds; tax credits which are applied to taxes payable, and tax reductions which reduce the tax base through increased allowable deductions or which reduce the tax rate. Tax credits have no impact on the tax base (at either federal or provincial level). However, as was demonstrated in Section III, tax credits at the federal level reduce the federal share of total tax revenues insofar as comparable tax expenditures are not made at the provincial level. Further, they preclude provincial participation which would otherwise be desirable inasmuch as provincial goals and priorities need expression and full consideration. Also, there is always the vexing question of true incrementality of the tax incentive.

For a tax expenditure made by reducing the tax base, certain deductions would be deemed allowable and would have the effect of reducing both federal and provincial tax bases, except for the corporate income tax in Quebec and Ontario. For a tax expenditure made by reducing the tax rate, the reduction may not be matched by the provinces and the respective revenue shares would be affected as described above with tax credits. Tax base reductions also do not have the same impact as tax credits, especially for those taxpayers with little or no taxable income. The use of either approach depends on the degree to which the relevant public agencies wish to address a cash flow problem. Further, for activities on Crown forest lands, regulatory requirements for increased forest management activities may be facilitated by tax incentives.

In any event, tax incentives are generally more cost-effective insofar as the existing tax system may be utilized. On the other hand, tax expenditures of this general kind are difficult to forecast, monitor, and control. The concerns for developing possible "tax shelters" may be met, to a degree, by "capping" the tax credit or allowable deductions.

Concerns by public agencies for the kinds of management activities that might be undertaken by taxpayers owning forest lands presumes these agencies have superior knowledge of the forest management requirements of private forest lands. Given the long history of forest extension programs in a number of provinces, tax incentives could very well enhance the viability and effectiveness of technical advisory services.

In summary, this brief highlight of selected funding mechanisms suggests that the historically preferred cost sharing approach to financing a variety of forest management activities in the past should be re-examined. Little, if anything, has been done to evaluate past programs on the basis of any number of criteria consistent with the stated objectives.

From a cost-effectiveness point of view, it is held that the tax incentives approach to inducing increased forest management expenditures on private forest lands is the preferred mechanism. However, it is not clear what the nature and extent of the obstacles to such activities really are, and consequently, which particular tax incentive (or combination of incentives) is appropriate.

VII PROPOSALS FOR TAX POLICY MODIFICATIONS

This review and discussion of the tax system viz intensive forest management activities has led to two observations:

1. the preference for tax incentives, favoring capital spending through investment credits and/or accelerated capital cost allowances over labor spending, appears to have become more or less permanently imbedded in the tax structure without any empirical evidence of the consequence of this non-neutrality aspect in the longer term.
2. the long-standing problem of failing to induce private investment in forest management activities on public forest lands because of barriers to an equity in the future crops seems insoluble, despite the expensing provision of expenditures for essentially longer term capital gains.¹

These two observations form the basis of the following proposals for further study in modifying the tax system to induce increased expenditure on intensive forest management activities. The proposals are complementary, and of course, would have to be subjected to an evaluation based on the established criteria of assessing tax modifications. In principle the proposals could be applied to the problems of renewal of flow resources held for the most part under public ownership and control.

The first observation of the preferential tax treatment of capital spending is based on conventional notions of the investment multiplier. Investment incentive tax policies have shown considerable variation in type of policy, direction of intended impact, and duration.²

The federal budget of May 8, 1972 again focused on manufacturing and processing with the introduction of accelerated capital cost allowances and a reduction in corporate and small business tax rates. Despite considerable opposition to these measures in parliament, they became more or less permanent through their indefinite extension in the budget of November 13, 1974. Further, the Investment Tax Credit was introduced in the budget of June 23, 1975 and though it was initially scheduled to terminate on July 1, 1980, it was later extended indefinitely. On the other hand, the Employment Tax Credit was

¹ Capital gains is used here in the economic sense and not as delineated in tax law.

² F. J. Harman, and J. A. Johnson, *An Examination of Government Tax Incentives for Business Investment in Canada*, Canadian Tax Journal, Vol XXVI, No. 6. 1979. pp. 691-704.

introduced on March 8, 1978 and scheduled to terminate on March 31, 1980. It was extended, however, for a third year and expired on March 31, 1981.

The differential treatment is curious insofar as it suggests that the employment tax credit was a countercyclical marginal subsidy to labor whereas the measures to induce investments in capital appear to have been designed to address a longer term structural or supply deficiency problem. The effectiveness of such investment incentives is far from certain because the consequences are a reduction of government tax revenues and a time-lag effect in investment activity. In a recessionary period both characteristics are simply exacerbated, i.e., made greater and longer respectively.

Further, government tax revenues are reduced by the labor displaced by the incremental capital, or at least, the marginal rate of capital expansion will likely exceed the marginal rate of labor increase, but there will be a decidedly shorter time-lag on the consequent displacement of labor. Given the short and fixed term of the labor subsidy, it would not be surprising that those employed would command below-average wages in return for a marginal reduction in their duration of unemployment. Again, given the short-term nature of the subsidy, the termination point must surely result in a precipitous increase in unemployment.

Since unemployment is expected to remain high for some time and more pervasive in its incidence amongst the skill levels and difficulties associated with single industry northern communities, where forestry and mining predominate, it may be worthwhile to examine employment measures with respect to forestry renewal.

Specifically further study is proposed on a marginal employment subsidy directed toward the development and employment of silvicultural workers in forestry renewal activities above an average level during some base period.

The subsidy would apply not only to those incremental jobs created by the subsidy but also to those jobs displaced in wood conversion plants, for whatever reason, in these particular northern communities. The initial subsidy period would be for 2 years at the full level of support and continue for an additional 3-4 years at progressively lesser rates of support. The essential feature of this design is that it should induce maximum employment in the first 2 years yet avoid rapid reductions in the initial employment levels immediately thereafter. Given that most firms would have a low base period level of employment because of current silvicultural activity, the subsidy should encourage the establishment of firms specializing in providing silvicultural services to industry and government.

The seasonal nature of regeneration activities could be partially ameliorated by giving greater weight to a variety of stand improvement activities, particularly as sufficient lead times for development of nursery facilities would have to be provided. With the magnitude and scope of forecasted forest management activities, the effective demand for relatively unskilled labor could be considerable and the requirements for skilled forestry technicians could broaden the employment opportunities for this group.

The second observation is that unless provincial jurisdictions make basic changes to their approach to forest management, there will be little opportunity to utilize tax incentives to induce the private sector to engage in expanded forest renewal activities on public lands. The historical barriers to an equity position in future timber crops on which the industry has to pay taxes on net revenues generated from the conversion of these crops to commercially valuable products appear insoluble. This situation has caused a partitioning of forest management responsibilities that has contributed to an undesirable degree of inertia in the planning, finance, and implementation of forest management activities on the part of the two senior levels of government and industry. These institutions have individual strengths and degrees of interest in the management of timber resources that lack a cohesiveness of application to the management of the resource.

To partially overcome these historical barriers, *it is proposed for further study that industry gain equity in future timber crops by "earning" a timber warrant (in volume terms) through incurring the necessary regeneration costs on cutover public lands (or other unallocated land).*

Such timber warrants would have the following characteristics:

- a) They would share many characteristics of warrants in the equity market,
- b) They would be area specific and so identified,
- c) They would expire at a point (but be exercisable before) approaching the culmination of mean annual increment of the selected species-product-site combination reflected in the regeneration treatment,
- d) They would represent a liability to the Crown in volume terms as determined by the appropriate yield (volume-age) table,
- e) They would be exercised at the holder's discretion at any time at the prevailing stumpage charge,
- f) The costs of earning such a warrant would be allowed as a deductible expense as provided in the Income Tax Act,
- g) A firm electing to maintain and protect the regenerated stand(s) over the growing

period would receive yields greater than that specified in the warrant free of stumpage and related charges,

- h) They would be freely traded (including private speculation) and the proceeds taxed as long-term capital gains, reflecting the sharing of the risk between government and industry,
- i) They would be held by a registrar (provincial) of timber warrants who would regularly publish all relevant information (number held and by whom, unit values, etc.) to facilitate open-market transactions,
- j) The Crown could elect to regenerate those lands not so treated by the existing industry and issue similar warrants for sale at discretionary prices.

At the outset, it must be recognized that a device such as warrants is not an alienation of Crown land *per se*, but rather a contractual right to the future crops resulting from the private operator's initiatives. Not only would there be a clarification of landlord - tenant responsibilities and rights, but a better balance of public and private responses to perceived future supply-demand conditions. Further, the area of economically accessible productive forest land covered by timber warrants should not, and need not, represent an extensive share of Crown lands. Indeed, the Crown itself could hold warrants for future sale on those lands where private operators chose not to operate in the future. Given the potential gains in future yields from more intensive forest management, the areal extent of lands committed to satisfying future industrial roundwood requirements should actually decline. At the same time, the Crown could hold through its own initiatives sufficient unallocated reserves to meet the requirements of numerous small and diverse operators dependent on timber supplies from public lands.

It should also be noted that private industry has been bearing an increasing share of the costs and responsibilities of forest management. The utilization of warrants is generally in line with this trend and simply seeks to afford greater security of future supplies and more efficient reallocation of timber inventory amongst operators in the industry.

There are, of course, a number of costs associated with the disposition of future supplies of timber through a warrants approach. The first that comes to mind is the potential for speculation and holding of timber warrants for capital gain. However, it is not altogether clear that such actions constitute an unequivocal cost insofar as they reflect scarcity of timber resources. On the other hand they could provide a mechanism

for increasing concentration in the industry, albeit such a trend has been observed for some time.

Of more concern to the Crown may be such aspects as the long-term liability on its part to "deliver" the prospective yields over time to the expiry of the warrants. Similarly, there is a certain degree of inflexibility with warrants in that the ability to reallocate forest lands amongst various end uses is rather limited, or at least compensation for forest land withdrawal could be a complicated issue. Also, non-timber values would not be recognized and might even be more overshadowed should a vigorous market in warrants develop. However, even on this point, it is felt that price movements of warrants would be marginal over most of the growing period and show significant change (and attract speculative activity) only as they approached the period of commercial possibilities.

The benefits and costs of such an approach are speculative now. Nevertheless, it is felt to be deserving of further consideration and study. The impasse of limited private resources and expertise applied to the management of public forest land, other than by regulation, and the highly imperfect reflection of stumpage charges to product market demands suggest a suboptimal level of intensive forest management activities on this significantly important resource base.

In summary, these two proposals are complementary and are based on the earlier observations of preferred tax incentives for capital spending and the lack of access of private equity to future timber crops on public forest land. Insofar as the proposed timber warrants might elicit increased private sector investments, it would still require the development of a pool of silvicultural workers to satisfy the essentially labor-intensive character of the desired forest management activities. The history of narrow and partitioned areas of responsibility amongst the relevant institutions and limitations of traditional forest regulation are held to be insufficient to meet the requirements of systematic forest renewal.

VIII CONCLUSIONS

This study has attempted to describe the nature and application of the tax system to the forestry sector in Canada and to make a general comparison with that found in the United States. This broad objective was undertaken in the context of the recent policy statement by Environment Canada on a framework of forest renewal. Specifically, the tax system was examined with respect to developing proposals to induce more intensive forest management on public and private lands.

This study was very much constrained by the lack of empirical investigations into the array of taxes at all levels of government and their impact on forest management and investment activities in Canada. On the other hand, there is a large body of theoretical and empirical material on the forestry sector in the United States. A partial examination of intercountry tax comparisons must be interpreted with caution, particularly from a general reading of tax law. Further, there are notable differences in the pattern of tenure, marketing, and stumpage pricing policies in this sector between the two countries.

Although there are a variety of taxes in our multilevel system of public finance, the income and property taxes were singled out for primary attention. These two taxes are of major importance with respect to forest management and investment decisions. The conclusions of this study are tentative because a normative approach was taken and are subject to empirical verification.

Nevertheless, a number of general conclusions regarding the interaction of the tax system and the forestry sector can be made. The first of these is that the Income Tax Act and Regulations, though both complex and vague, afford no particular preferential treatment to commercial activities in forestry. Indeed, the tax system may be characterized as being mildly anticompetitive insofar as restrictions on allowable losses and their carry-forwards fail to recognize the long production process in growing and selling timber, therefore inhibiting new entrants to the sector. Further, the tax system discriminates, for much the same reasons, between even- and uneven-aged forest management regimes and, to a lesser degree, against activities to "normalize" a forest. These tax aspects are mostly relevant to activities on private forest land.

The financial and consequent tax aspects of private forest land management have received little investigation in Canada despite the provision of significant public sector assistance (largely education and technical information programs) for small forest landowners. It is not clear whether the popular perception of inadequate investment on

these lands results from the net cash flow position of landowners or whether their perception is that the returns from intensive forest management are inadequate. There is little the tax system can do for those in the former situation and sufficient uncertainty exists to deter those who are neither in the business of farming nor in full-time commercial timber activities from undertaking such investments. The tax system should be made more explicit regarding the tax treatment of the nonfarm category of nonindustrial private forest landowners since the latter has attained a predominant position over the last decade. The basic issue is the allowance of losses in full against income from other sources "where there is a reasonable expectation of profit" from the activity. This profit test could be invoked to the disadvantage of the taxpayer wishing to undertake a first-time investment in the long-term process of growing and selling timber through afforestation of bare land.

The problem of private investment on public forest land is largely the result of institutional factors. The tax system is certainly no impediment; indeed, favorable treatment is afforded such expenditures as they may be currently expensed as a cost of business. It has long been recognized that due to the absence of an equity claim to the future crops, the private sector's interest in intensive forest management on public forest lands is limited to that of a passive participant induced by regulation. Further, such required expenditures have little or no market orientation by this large industrial consumer of the future crop.

The dichotomy of extensive public forest lands and the relatively smaller extent of private ownership suggests that the former, largely free of tax and other economic pressures, enjoys a significant competitive advantage. Similarly, the potential price interdependence of public and private stumpage sales is not fully understood, and may impact unfavorably upon the gross sales values of private landowners and their consequent ability to invest in intensive forest management.

The impact of the property tax on private forest land is felt to have been much lighter over the past two decades because of more uniform assessment and a gradual movement to present use assessment rather than highest and best use. Further, in one jurisdiction there is an expanding use of property tax rebates for managed forests. The notable exception to this conclusion might be British Columbia with its "apparently" higher tax rates. However, some relief is also provided in that province for managed forest lands.

The tax expenditures in the industrial forestry sector through certain provisions of the Income Tax Act have grown considerably during the last decade and have significantly eclipsed the direct expenditures of forestry activities during the latter part of the same period. The manufacturing component of the forestry sector appears to have received a disproportionate share of these indirect expenditures, largely at the expense of the federal government's share of income tax revenue (largely because of tax rate effects).

The thesis that has been developed here is that the tax system, particularly at the federal level, has enhanced, if not significantly increased, the demand for industrial roundwood largely held under provincial jurisdiction. This suggests that the provinces could respond by strengthening the forest resource base through a variety of fiscal policy measures to yield a supply response commensurate with the aforementioned demand increase. This approach is further strengthened because possible direct expenditures at the federal level, other than by mutual cost-sharing agreements, on the resource base are precluded by the Constitution. Consequently, it has been proposed that obstacles to private sector equity participation on public forest lands may be overcome through opportunities to earn timber warrants which would receive favorable tax treatment by both senior levels of government. Also, given the labor-intensive nature of forest renewal work and the need to develop a labor force of silvicultural technicians, a marginal labour subsidy has been proposed to facilitate achievement of this policy goal.

These brief conclusions arising from this particular investigation of the tax system as it is applied to the forestry sector in Canada are still tentative. The body of theoretical and empirical literature on forest resource taxation has been found wanting. The areas of resource taxation felt to be most urgently in need of examination are the interdependence (if any) between private and public forest lands, effects of the income tax on industry structure, and a theoretical investigation of tax neutrality and forest management regimes (even-and uneven-aged forests).

The first area of examination should be the financial characteristics of private forest landowners to ascertain the existence of cash flow constraints to forestry investments. Should none be found, then the tax-free comparative advantage afforded public lands and their consequent pricing policies may be imparting a depressing effect on private forest land returns. Estimates of tax burden on private forest land relative to other land uses may be distorted insofar as the latter land uses may not be competing with the public sector, i.e., these other land uses may be free of public sector price/income interdependence effects.

The second area of investigation might focus on the possible effects of a number of tax concessions on the structure of the forest industry. The most common observations of the "relatively" low rates of return in the industry are generally ascribed to a number of factor prices and costs. These rates of return and attendant cash flow problems have generally been held to inhibit the investment necessary to maintain or enhance the industry's competitive position. It is hypothesized that tax concessions which largely operate on the capital side may induce supra-optimal capital scale levels (and labor displacement effects) that impact on the marginal efficiency of capital. In other words, the tax system may induce over-capitalization in the industry. Also how has the corporate ownership pattern that has evolved over the last decade been affected by the tax treatment of Canadian intercorporate dividends? The final question in this area is how much tax-shifting is done that influences the final incidence of corporate tax, particularly the income tax. Little evidence could be found, however, to suggest further investigation into this aspect, especially when considering the competitive nature of most markets where the bulk of Canada's forest products are directed.

The final area for further investigation is basically a theoretical one. Virtually all studies on the theoretical impact of various taxes focus on a fully regulated forest and the optimal rotation period. But, the conclusions reached may not hold or the assumptions may be inappropriate for a variety of uneven-aged and mixed wood forests, particularly characteristic of a significant portion of private forest land. It is hypothesized that the nature of the problem is similar to that found with nonrenewable resources of different qualities with the important qualification that the species mix (quality) may be changed over time.

These are a few of the problem areas that have been subjectively selected for further study. Tentatively, it may be concluded that at this stage of investigation the tax system in Canada does not impart a significant burden to the forestry sector. On the other hand, it does little, if anything, to induce increased expenditures on intensive forest management activities. This last observation must be qualified by the imperfect knowledge on private forest land investment decisions. With respect to private investments on public lands, a basic change in approach by provincial jurisdictions has been recommended for further study and may be further enhanced by the tax system.



APPENDIXES

Appendix I**Selected References in the Income Tax Act and
Income Tax Regulations to the Forestry Sector**

<u>Topic</u>	<u>Section of the Act or Regulations¹</u>
Allowance for Oil or Gas Well, Mine or Timber	13
Capital Cost of Property	20(1)(a)
Capital Cost Allowances - Timber Limits and Cutting Right	Reg. 1100(1)(e)
Separate Classes of	
- Woods Assets	Reg. 1100(1)(f)
Capital Cost Allowances - Wood Assets (Class 15)	Reg. Schedule IV
- Timber Resource Property	Reg. Schedule II (Class 33)
- Timber Limits and Cutting Rights	Reg. Schedule VI
Deemed Capital Cost of Certain Property	13(7.1)
Depreciation Recapture Applicable Rules	13
Undepreciated Capital Cost	13(21)(f)
Disposition of a Timber Resource Property	20(5.1)
Eligible Capital Expenditure	14(5)(b)
Employment Tax Credit (definition)	127(16)
Inadequate Considerations (for disposition of property)	69(1)
Interest	20(1)(c)
"Investment Tax Credit" defined	127(9)
Logging Tax Deduction	127(1) and (2)
Logging Taxes on Income	Reg. 700
Loss from Farming Where Chief Source of Income not Farming	31
Part Dispositions (of a property)	43
Restricted Farm Losses	111(1)(c)
Timber Resource Property (definition)	13(21)(d.1)

¹ Unless otherwise indicated, references pertain to the Income Act.

Relevant Interpretation Bulletins

IT-373 Farm Woodlots and Tree Farms

IT-481 Timber Resource Property and Timber Limits

Appendix II

Economic Rent and Theory of Resource Taxation

The following discussion of rent and taxation is felt to be of consequence, given the importance of natural resources in the Canadian economy. The objective here is to examine the impacts of public pricing and production policies on the allocation of economic rent and whether the tax system in the forest sector is neutral in resource allocation to the growing and selling of timber. As approximately 90 percent of productive forest land in Canada is held under public ownership (although significant regional variation in private and public ownership patterns is present), it would seem that appropriation of economic rent by a near monopoly institutional arrangement would not be an issue. Further, the system of taxation, particularly at the federal level, and the pricing and timber regulation policies of provincial governments for Crown timber are closely related and may provide strong disincentives to both leaseholders of public forests and private landowners to undertake forest renewal activities.

The interjurisdictional disputes over resource taxation concerning appropriation of economic rent of oil and gas activities over the last decade are not at issue in the forestry sector. Indeed, there seems to be a singular lack of interest in this aspect if the paucity of either theoretical or empirical literature is any indication.¹ This is rather intriguing because the implicit strategy of provincial jurisdictions appears to be one of passive pricing of timber products to induce capital investment for the creation of jobs and economic development, and therefore to increase the tax base for subsequent taxation.

However, as demonstrated in Sections II and III of this text, the taxation system in Canada is so structured as to confer primary benefit to the federal level in terms of resource income tax revenues. Nevertheless, the provinces do not lack the "tax room" to appropriate economic rents from operators on the resource base. These are legitimate costs for deduction in the determination of taxable income and serve to reduce the tax base available for federal income taxation. Ironically, tax concessions at the federal level since 1971 have also reduced the tax base and introduced tax rate changes which have further reduced the federal share of tax revenue emanating from the forestry sector.

¹ A notable exception would be L. Copithorne, *National Resources and Regional Disparities*, Economic Council of Canada, Ottawa, 1979.

Although the former affect the provincial tax revenues as well by way of "piggybacking", tax concessions are almost entirely borne by the federal government and are the major reason for the decline in federal shares.

The thesis developed here and elsewhere in this report is that the federal government has raised the effective demand for timber resources by expanded capital plants through tax concessions (tax expenditures) and other direct expenditure programs. Therefore, the federal government has some interest in the extent to which the owners of the resource base, the provincial governments, develop pricing and production policies to expand supply viz forest renewal activities. The extent of current and future assistance at the federal level to these activities has recently been set forth in a policy document.² For their part, the provinces have utilized a variety of royalties and user charges to secure their rightful share of the economic rents as landlords of the natural resources. The prevailing situation in the forestry sector has been characterized as a transition period of benign consumption of natural wealth to systematic forest renewal.

However, insofar as the transfer of natural resources to the provinces at Confederation was to be the cornerstone of provincial finances for social programs, the question remains "Who gets what from whom?" In other words, to what extent can the provinces finance the forest renewal activities felt necessary to meet future timber demands. An ancillary question is "What effect do government pricing and taxation policies have on investments in intensive forest management on private lands?" Given the absence of meaningful data, particularly on activities on private land, the following discussion largely takes a normative approach with basically intuitive conclusions.

The Concept of Economic Rent

The concept of economic rent became the focus of considerable interest in the last decade as a result of O.P.E.C. generated price shocks in the oil and gas sectors in the international market. The added dimension to Canada, with a significant oil and gas industry, was the difficulty of interjurisdictional disputes on the sharing of huge windfall revenues through a variety of tax devices.

² Environment Canada, *op. cit.*, 1982.

The concept of economic rent is the main justification for special taxes on natural resources, particularly from the viewpoint of the provinces.³ The concept was first developed by David Ricardo in the early part of the nineteenth century in an attempt to explain why agricultural land exhibited differential values under the same type of cropping. For a variety of reasons, a given resource exhibits variable qualities that directly affect the cost of producing and/or extracting a physical unit of output for immediate sale or further manufacturing and processing.

The production or extraction of the resource will be pursued so long as the market price of the output is sufficient to pay for the variable quantities of factors (labor as wages, capital as interest, and other materials as required by their prices). At the highest point of activity where the product earns an increment of revenue just equal to the increment of cost (to employ all the required factors), there will be no incremental surplus. However, looking back at all the higher quality (lower unit cost) sources one will observe a surplus over and above the production/extraction costs. Ricardo named this surplus as rent and attributable to the resource. Consequently, owners of the resource would enjoy (capture) variable rents contingent upon their quality. Should society demand more of the products from the resource, the price would rise and permit prior submarginal resources to be brought into production. This in turn would raise the rents of those already holding the particular resource. Because of this phenomenon John Stuart Mill held that such increments to rent should be appropriated by society as an "unearned" surplus to the resource owner. Somewhat later, in the early part of this century, Henry George brought the question of rent into the area of public finance, contending it should be the sole source of government tax revenues.

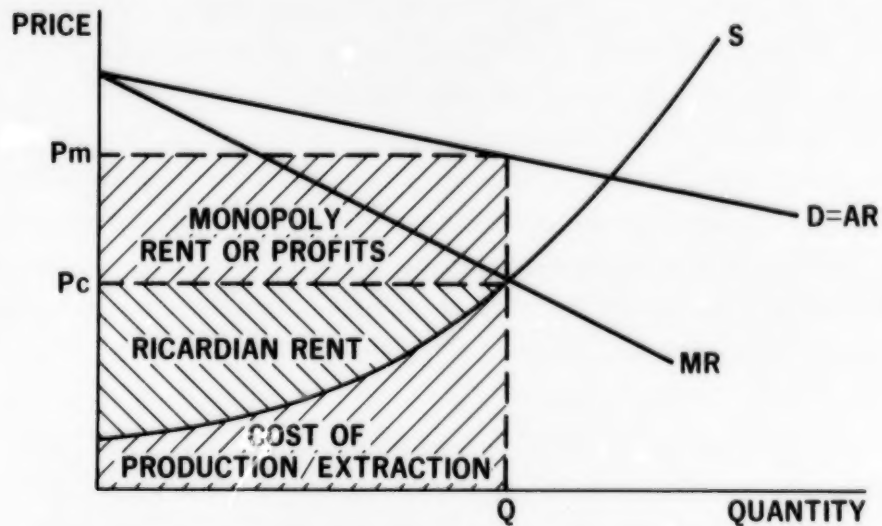
Debate on the issue of resource rent lay dormant till the early 1960s when attention was directed to the generous concessions given the mining industry, particularly by the Carter Commission and later by the Kierans Report.⁴ The culmination of the disputation of rent came with the international oil crisis and the interjurisdictional dispute in Canada over these surpluses.

3 Ontario. *Report of the Ontario Committee on Taxation*. (Queens Printer) Toronto, 1967. (Also known as the Smith Committee.)

4 Canada, *Report of the Royal Commission on Taxation*, (Queens Printer) Ottawa, 1966; E. Kierans, *Report on Natural Resources Policy in Manitoba*, (Queens Printer) Winnipeg, 1973.

The concept of rent may be easily illustrated for a static condition and is found in Figure I below. Further, the diagram also shows how monopoly profits are extracted. In perfectly competitive factor and product markets where there is no monopoly profits, the resource owners receive the Ricardian economic rents. Under imperfect competition, the appropriation of monopoly rent (a profit) is not so easily determined. The government, in theory at least, has a number of devices to appropriate the rent, ranging from royalties, taxes, competitive sale of access rights to nationalization. Monopoly profits can be bid away by permitting greater access to the resource in question.

Figure 1 Ricardian Rent and Monopoly Profits



In forestry, the notion of rent has not been so easily developed. Its origins can be traced to the middle of the last century in Germany where the evolution of two schools of thought began. The competing views are sometimes called soil rent (or soil expectation value) and forest rent. Simply stated they differ in that the former seeks to maximize net returns per unit of time while the latter strives to maximize net returns (or volume of timber) per acre.⁵

The capture of rent by competitive auction has the advantage of revealing what the rents really are, at least from the perspective of the bidders subject to their state of knowledge of the resource and product market expectations. This is characteristic of timber disposition on most U.S. National Forests. On the other hand, a specific "tax" per unit of resource (variable because of identifiable factors such as species, quality, location, etc.) as it is harvested is characteristic of Crown timber disposition in most of Canada. Naturally, provincial (Crown) agencies must also be sensitive to price movements in final product prices, the behavior of all relevant costs that enter into the production or extraction of the resource, and the tax policies of competing jurisdictions (provinces).

A common misunderstanding regarding stumpage fees should be clarified at this point. Stumpage fees, especially as a device to collect rent, are not really a tax in the conventional sense, but rather a royalty of limited market responsiveness. It is a common misconception to include stumpage and related fees with other taxes to demonstrate tax burden on the industry when in fact they are administered or negotiated prices for particular public sector goods and services. Similar goods and services are available, albeit at lesser quantities, in the private sector.

Of greater importance, Copithorne has provided an interesting summary commenting on the efficiency of these devices to capture rent:

"Of the techniques used to capture economic rents, the stumpage fees and the special tax on logging income are demonstrated not only to be somewhat inefficient, but also to generate undesirable incentives for business and labor to

⁵ Readers interested in this subject are directed to M. M. Gaffney, *Concepts of Financial Maturity of Timber*. Agric. Econ. Inf. Series, No. 60. Dept. Agric. Econ. Ottawa, 1960; M.M. Gaffney, *Soil Depletion and Land Rent*, Nat. Resour. J. 4(3): 537-557; also see; W.R. Bentley, and D.E. Teeguarden. *Financial Maturity: A Theoretical Review*, For. Sci. II (1): 76-87. 1965. The term financial maturity is attributed to S. Guttenberg, *Financial Maturity Versus Soil Rent*. J. of For. 51:714. 1953. Financial maturity is a perspective of financial analysis and should be viewed as such when examining the objective(s) of each type of forest land owner (individual, corporation, or public agency).

pass the rents on disguised as high wages or as high manufacturing income, or as high prices for materials and supplies purchased by forest companies. Export and import tariffs also are demonstrated to be inefficient collectors of resource rent because they reduce national income through a partial destruction of the gains from international trade. *Ad valorem* royalties or per unit royalties that apply at the same rate to all natural resource output of a particular kind are inefficient because they fail to capture all the rent on especially rich natural resources and they render marginal natural resources uneconomic, thereby curtailing output."⁶

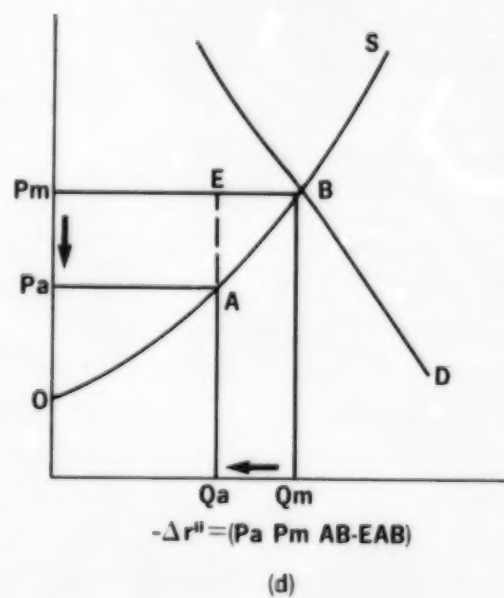
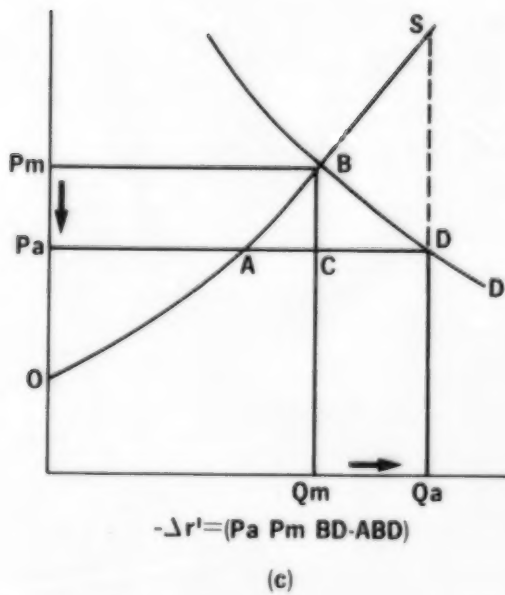
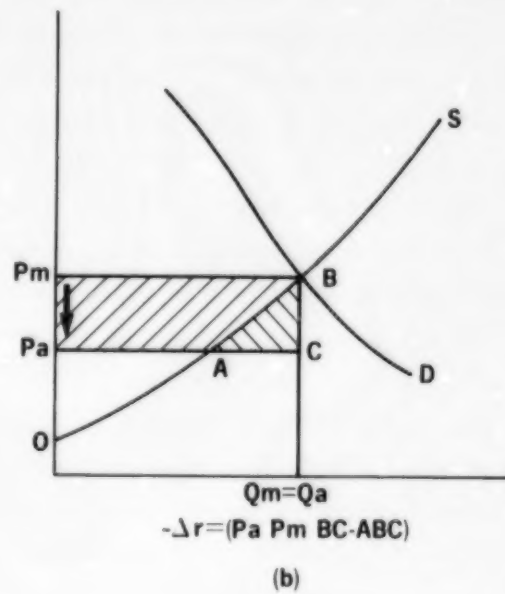
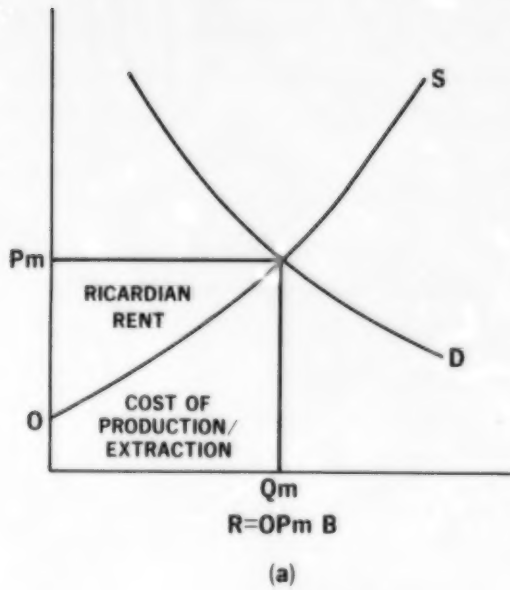
Economic rents are difficult to ascertain, even *ex post*, or what Gaffney describes as "unscrambling the omelette."

The diagrams shown in Figure 2 illustrate some of the problems of rent capture with undifferentiated stumpage fees and regulated output of traditional sustained yield. In Panel (a) Ricardian rent is illustrated in a competitive market situation with P_m and Q_m being the static market equilibrium price-quantity set with rent R equal to the area OP_mB . This reference set holds for a number of possibilities that may exist through administered prices and regulated output (P_a and Q_a respectively) on public land and are shown in Panels (b) through (d). At the bottom of each panel, r , is the symbol for rent loss to the Crown in each situation. Note that Panel (a) (as in Figure 1) exhibits the supply or marginal cost curve for either the firm's cost of exploiting virgin timber or the Crown's cost of producing second-growth timber on public lands. The market (and administered) prices are unit volume charges for standing timber in the forest. The second term in the rent loss calculation is always subtracted to correct for the "apparent" loss of operating on quantities of timber indicated at the administered price, P_a . In all cases, the real rent to the Crown is determined by the market prices and quantities and the rent loss is further determined by the administered or regulated prices and quantities respectively (i.e., where $Q_a < Q_m$). It is noted that losses to the operator (logger) as may be deduced in panels (b) and (c) are ignored. The reference points to keep in mind are P_m and Q_m as shown in panel (a).

In Panel 2 (b) $Q_m = Q_a$ coincidentally and the rent loss is purely the result of P_a . In Panel 2 (c) the $P_a Q_a$ set appears consistent with the firm's demand schedule; however, assuming $Q_a - Q_m$ has no effect on P_m , the firm is subsidized to operate at a supramarginal output level where the supply curve represents the Crown's cost of producing second growth timber. Where the supply curve represents the firm's extraction

⁶ Copithorne, *op. cit.* 1979, p. 167.

FIGURE 2. RENT LOSS THROUGH ADMINISTERED PRICES AND REGULATED OUTPUT



IN ALL CASES, $P_a < P_m$ AND $Q_a \geq Q_m$.

cost, the rent capture of the firm (which is PmPaAB in Panels (b) and (c)) would be reduced by BAC and ADS respectively.

In Panel 2 (d) output regulation prevents "overcutting" at a rent "loss" to the firm of EAB. What is not shown in the panel is the equilibrium price consistent with the Crown's sustained yield output. Such an adjustment would merely exacerbate the rent loss that is illustrated.

The examples shown in Figure 2 are by no means complete and simply demonstrate the real difficulties facing public agencies in making price and regulation decisions. To return to the issue of rent appropriation, it should be pointed out that governments may choose to use the taxation system to indirectly secure a share of the rents. However, given the characteristic multilevel fiscal system, rent which is not appropriated by the provinces through user charges becomes subject to federal income tax (should the uncaptured rents flow to labor or capital) by being deductible as a cost of business in determining taxable corporate income. The provinces could still tax some of this rent to a margin determined by their respective corporate tax rates exceeding the 10 percent level of federal abatement (for a time this was the case in British Columbia when the logging profits tax was at 15 percent).

With the limited available data it is not apparent where uncaptured rent flows as the calculations in Table 1 illustrate. The wage share of value added is not strictly comparable between jurisdictions insofar as labor substitutes for capital as the latter ages. Nevertheless, the implied ratios of average stumpage prices to logging and forest industry value added are interesting. The lower the ratio, the greater is the "exposure" to the federal tax system. In addition, an implied objective of the provinces with respect to their forest resources is economic development (in addition to job creation). If total value added per unit of industrial roundwood subject to market constraints is accepted as a proxy measure of development, the results suggest that higher stumpage prices do not necessarily generate more economic use of the resource in question. However, given that the measures are rather crude, the results should not be interpreted too strictly.

Another area of speculation, introduced by an examination of Figure 2, is the impact of provincial pricing and regulation policies on prices and market opportunities for owners of private forest lands, which has received very little attention in the relevant literature. The incentives/disincentives to investment, production, and sale of primary forest products from private nonindustrial forest lands are little understood. Casual examination of Crown-private production data would suggest, from at least a production point of view,

that Crown policies have little impact on private land if a disproportionate harvest share in favor of the latter (on an area basis) is any indication. The capacity of private forest land to support such a share is based on such factors as superior land productivity and location with respect to wood converting plants. This in turn suggests that such lands may be generating considerable economic rents, particularly due to location.

The BNA Act limits the fiscal powers of the provinces to direct taxation thus precluding them from levying royalties (stumpage fees) on the exploitation of alienated forest resources. As noted earlier, stumpage fees cannot be considered an indirect tax (although they resemble such a tax in form) as they represent the pricing prerogative of the Crown as landlord or steward of the public resource.

Given the distribution of private land by province, it is easy to understand the importance of stumpage and other fees in the western provinces versus the reliance on income and property taxes in the eastern provinces to obtain public revenues. However, Paragraph 92A (4) of the Constitution Act removes this dichotomy and allows "any mode" of raising money from these resources and "the primary production therefrom." Primary production has been also defined to include lumber and wood pulp. It will be interesting to see if the provinces exercise these expanded rights should they wish to assess royalties to private land stumpage sales and/or levy an excise or surtax on such manufactured products or income earned therefrom. In effect, the Constitution now gives the provinces expanded powers to appropriate rent should they so wish.

Resource Taxation

There are three broad groups of "taxes" that apply to the growing (extraction) and selling of forest products in Canada at federal, provincial, and municipal levels. These three groups use royalties or stumpage and related fees (ground rent, forest protection, etc.), income, and property taxes (logging profits tax is a form of income tax).

The utilization of stumpage fees (a levy per unit of wood volume) is a traditional source of public revenue from Crown forest lands.⁷ However, they are particularly inefficient in that they are generally fixed per unit of volume of wood extracted, and can render marginal utilization unprofitable (i.e. lower utilization rates). Conversely, in the

⁷ For a recent comprehensive review of provincial stumpage charges see C.H. Gairns, *Provincial Charges for Timber in Canada*. Report prepared for the Department of Tourism and Renewable Resources, Regina, Saskatchewan. 1982.

Table 1
Stumpage and Value Added Values from Industrial Wood
Production by Province, 1979 (a)

Province	Industrial Prod (b)	Crown Revenue/m ³ Stumpage	Roundwood (c) Total (e)	Value added/m ³ Logging	Wages Total Industries (f)	Wages Added (d)
	000/m ³	\$/m ³		\$/m ³	(%)	(%)
Nfld.	2 254	0.13	0.75	N.A.	N.A.	N.A.
N.S.	4 171	0.67	1.33	10.00	39.6	45.8
N.B.	8 495	1.28	1.47	12.03	50.6	52.1
Que.	33 612	1.04	1.45	15.95	56.1	38.0
Ont.	20 034	2.38	2.75	17.02	59.2	41.8
Man.	1 798	0.85	1.06	13.75	54.9	N.A.
Sask.	3 454	1.09	1.12		37.3	N.A.
Alta.	6 930	0.82	1.08		49.4	39.5
B.C.	76 195	8.01	8.35	13.81	47.0	33.8
Canada	157 251	4.70	5.05	14.38	50.8	41.6

a) The year 1979 was chosen to correspond to Reed, *op. cit.*, 1980 revenues/expenditure estimates for each provincial jurisdiction.

b) Industrial production is from both public and private forest lands.

c) Average stumpage and total revenue estimates are based on harvests from Crown land only.

d) Value added/m³ is calculated on the basis of production and will be biased upwards (downwards) if the province is a net importer (exporter).

e) Includes stumpage plus other related charges such as ground rent and forest protection.

f) Total industries is the sum of the value added/m³ in logging, wood, and paper and allied industries. Also, value added/m³ in logging for the prairie provinces includes Newfoundland and P.E.I.

Source: Statistics Canada, Ottawa, *Canadian Forestry Statistics* 25-202,

Annual 1979 is the source for most calculations in the table.

absence of a competitive determination of marginal rent, they may be set low enough to subsidize submarginal production. Although they are relatively easy to administer, they are becoming more complex (and in British Columbia with a markedly different stumpage appraisal system, they are becoming more costly) and yield comparatively small revenues.

The basis for taxing forest resources is largely through the income tax on income realized through the conversion of timber to marketable products. The income tax in Canada has been discussed in detail in Section II and related tax expenditures are estimated in Section III. The logging profits tax is a form of income tax and is basically an anomaly yielding marginal tax revenue.

Property taxes were historically the most important revenue base for municipal governments (estimated to be 33 percent of local government revenues in 1980). The share of real property tax levied on private forest land is not known other than for British Columbia (\$12.6 million in 1975). However, as reviewed in Section II, the implied rates of tax on private forest land appear to be nominal. This view must be qualified by the physical nature of the growing stock, i.e., is the landowner practising even-aged or all-aged management? The cash flow impact of the various kinds of property taxes is contingent upon the age-class distribution of the owner's forest capital. The same sort of impact is also present with respect to the income tax subject to the class of forest property (as noted in Section II). These factors are discussed in Section V of this report.

There are generally three kinds of property tax relevant to forest land that receive most attention in the literature. These are the *ad valorem* tax (applied to land and/or standing timber), the productivity tax, and the yield tax. The literature is replete with arguments for preferential forest land taxation.⁸ However, recent studies have questioned the conventional wisdom of forest tax theory and it would appear that the debate of the early part of this century on this issue is subject to doubt.

The three kinds of property tax may be examined for their relative advantages and disadvantages as discerned from the literature in the U.S.

The *ad valorem* tax may be levied upon land and/or timber with much the same results. The main advantage of this tax is that it tends to be uniform with respect to the

⁸ The Fairchild Commission in the U.S. contained 300 or so citations in 1935. See F.R. Fairchild, and Associates, *Forest Taxation in the United States*, U.S.D.A. Misc. Pub. No. 218, Washington, D.C. 1935 and briefly discussed in Section IV.

timber capital, particularly the income accrual of the growing timber. Interestingly enough, this theoretically correct treatment of timber capital has aroused most of the criticism of forest property tax. The disadvantages are held to be that it represents a kind of front-end loading (i.e., tax on unrealized income) that will displace low-income owners, or owners with severe cash flow problems. Further, it is held that there is little profit motive to restock cutover lands, the tax encourages premature cutting, discourages intensive forest management, and is not related to the benefits the landowner may receive. From an administrative point of view, the tax may vary because of different local assessment and tax rates, and the necessary timber cruises (when the tax is applied to the standing timber) may be too costly relative to the tax revenues received.

The productivity tax is a tax on the potential of bare land (or site) to grow timber crops. Its main advantage is that it is an inducement to stock the land as early as possible and to manage the timber capital intensively (i.e. no pressures to harvest prematurely). The benefits to local government are revenue stability as is the case with the *ad valorem* tax. The disadvantages are that it is also front-end loaded, it excludes property improvements if the site is the tax base, the smaller base may require a higher tax rate to satisfy local government revenue requirements, and the impact on low-income owners or those with cash flow problems is the same as the *ad valorem* tax. Gaffney points out that forest land would have to be specially classified according to capitalized values of commercial forestry insofar as it may draw submarginal lands into forestry for tax shelter purposes. Also, given the rapid growth of recreational demand, such a policy causes land to be assessed on the values of other demands. There are significant re-entry and recapture problems that would additionally have to be solved.⁹ Hagler also notes that in the southern U.S., a Finnish type of productivity tax would likely cause many owners, who were unwilling or unable to make the capital investment or pay the taxes, to probably sell their land. The effects on large timberholding companies would likely be a reduction of surplus inventories and replacement of mature, slow-growing trees, but after a period of adjustment, industry would probably benefit from an increased supply of wood.¹⁰

The yield (or severance) tax is basically a periodic income tax and as such the deferral of tax reduces its present value and the consequent tax load. It therefore

⁹ Gaffney, *op. cit.* 1978.

¹⁰ R.W. Hagler, *How Tax Law Affects Forest Yields, Pulp & Paper Industry*, January, 1982.

minimizes the impact on cash flow and hence the pressure to cut prematurely. Indeed, if anything, it may defer harvests indefinitely, particularly for the landowner with little or no interest in commercial forestry.

For the tax authority the yield tax may generate high revenues, albeit periodically, and result in risk-sharing of potential revenue losses because of falling prices and other noninsurable losses (fire, insects, and disease).

The disadvantages to local government revenues are instability because of risk-sharing, although such risk could be pooled to the provincial/state level. It can also reduce the incentive to restock cutover land. Gaffney notes there is "invisible high-grading" insofar as the tax has a bias against better sites through an implied shorter cutting cycle with lesser capital inputs.¹¹

However, if the yield tax is levied on a net yield basis by deduction of harvesting costs, this can deter any high-grading possibilities. Nevertheless, the net yield tax still has an intertemporal bias insofar as other short-term intensive forest management investments such as the costs of timber stand improvement are not deductible.

All the property taxes described above share a similar characteristic in that they are generally capitalized into lower land values, which in turn may be a disincentive to regenerate cutover lands. However, the three kinds of tax have differential impacts on forest land values. Klemperer has demonstrated this and found that for a regulated forest a yield tax has the least effect, an *ad valorem* tax would have a greater impact, and the greatest impact would be under the productivity tax.¹²

From the foregoing discussion there appears to be no ideal property tax when judged on the criterion of tax neutrality. Indeed, if one strives to lower the tax load by taxing only forest land and initial forest improvements (establishment cost) and removing the bias against deferred yield, an equity problem results by exempting accrued timber values from land uses such as growing timber. This is because the annual property tax is a very small percentage of the accrued income from the growing timber. Klemperer suggests a novel means of avoiding this problem by deferring the property tax on the establishment cost over one rotation and then applying it with accumulated interest as a yield tax. This would raise more revenue without increasing the annual tax load on forest property.¹³

11 Gaffney, *op. cit.*, 1978.

12 W.D. Klemperer, *Impacts of Tax Alternatives on Forest Values and Investment*, Land Economics 52 (2): 135-157. 1976.

13 W.D. Klemperer, *An Analysis of Selected Property Tax Exemptions for Timber*, Land Economics 58 (3): 293-309. 1982.

Insofar as a yield tax is a kind of income tax, it may be helpful to examine the application of income tax to the timber income. Also, the composite of income and property taxes should be examined for implications to intensive forest management and/or appropriations of economic rent.

The basic difference between income and yield taxes is that the former allows the deduction of a full range of business costs in the determination of taxable income. This in turn means that the costs and risks of growing and selling timber are shared between the forest landowner and the tax authority. However, the income tax can result in a capital intensive bias by more generous deduction provisions for capital items. Similarly, the tax treatment of realized income may be one of capital gain at preferential rates or ordinary income at the taxpayer's marginal rate.¹⁴ The bias introduced by capital gains treatment results from inducing the growing of timber with a greater input of time and a lesser input of labor at the front end. Time aspects (interest and property tax) are expensed and regeneration costs (labor-intensive) are capitalized.¹⁵ Further, vertically integrated firms have an incentive to shift rent from the converting plant to the logging operation to increase that portion of taxable income receiving capital gains treatment. As Mead notes, this allows the fiction of selling one's timber to oneself for further processing. As this is not a market sale transaction, the "sale" price must be assigned a "fair market value."¹⁶ Mead further hypothesized that capital gains would likely cause a shift in forest land ownership from small independent holdings to large integrated corporations as the latter are better able to shift income which is subject to high rates of tax which a small landowner does not have.

Sunley points out that small landowners receive little benefit (and similarly small businesses) as compared to high income groups because of the differential impact on the effective rate of income tax and consequent after tax income improvements. This is interesting given the oft repeated defence of capital gains to protect the small landowner.¹⁷

14 This is the single greatest difference between Canada and the U.S. in the treatment of income arising from the growing and selling of timber. For a description of these differences, see sections II and IV respectively.

15 Gaffney, *op. cit.*, 1978.

16 W.J. Mead, "The Impact of Capital Gains Taxes on Timber Resource Utilization". In *Univ. of Oregon Taxation and Conservation of Privately-Owned Timber*, Conference Proceedings, Eugene, Oregon, January 27-28, 1959.

17 Sunley, *op. cit.* 1976.

With increasing allowance to expensing the costs of carrying and growing timber, the value of capital gains treatment diminishes. This is simply because expensing is equivalent to exempting the income from capital expenditures from taxation. Further, the tax authority assumes a greater share of the risk insofar as the taxpayer has been able to reduce his capital at risk.

Where capital gains is applied logically, it requires the capitalization of related expenditures. For intensive forest management, expensing such activities and "capping" the subsequent gain would probably be an inducement to small forest landowners.

In summary, the advantages and disadvantages of various kinds of property taxes and the tax treatment of timber income suggest that the relevant decisionmakers are faced with a difficult trade-off. The objectives of stable forest land ownership (particularly for small landowners) and increased investments in intensive forest management appear to be mutually exclusive, given the current state of theoretical knowledge and the virtual lack of empirical information of landowner behavior under various tax regimes.

To return to the appropriation of economic rent for a moment, it is important to note a rather peculiar effect in forestry. An *ad valorem* property tax (as well as a productivity tax) appropriates a higher share of accrued income from land under even-aged crops than it does on realized (or realizable) income from all-aged crops, regardless of how nominal the tax load may appear.¹⁸

This gross non-neutrality of the tax would suggest that owners would try to normalize the age-class distribution. However, this may be neither economically efficient (from a regional supply point of view during the conversion period) nor silviculturally possible. An intuitive approach would seem to seek a composite income and property tax or a modified property tax to neutralize such biases.¹⁹

¹⁸ The reader may demonstrate this simply by calculating the terminal value of an annual series at selected interest rates and rotation ages for nominal tax loads and compare this to local yields and stumpage prices.

¹⁹ Recall again, Klemperer *op. cit.*, 1982.

Appendix III

Federal-Provincial Tax Equalization and the Forestry Sector

The equalization of per capita tax revenues is a federal program established under the authority of Part 1 of the Federal-Provincial Fiscal Arrangements and Established Programs Financing Act, 1977 (S.C., C. 10, 1976-77). The program, which began as a separate entity in 1957 with the last of the federal-provincial tax rental agreements, provides annual unconditional payments to provinces (and not to individuals) that have a below-average capacity to finance public services. It is financed by all taxpayers, not just those from the "have" provinces, subject to federal taxation.

The objective of equalization is to provide reasonably comparable levels of public services at reasonably comparable levels of taxation. Despite the somewhat controversial nature of the program, the program has recently (April, 1982) been renewed for the sixth time.¹

To oversimplify, the equalization system is composed of a number of tax sources (originally 4 in number and later expanded to 33), each of which contribute to what is known as a "representative tax system," i.e., that which is collectively in effect in the ten provinces and reflects the economic activities (income, consumption, wealth, resource rents, etc.) that the provinces actually choose to tax. By examining the tax base and tax revenue of each of 33 "source sectors," a common tax base and tax revenue (yield) may be aggregated to calculate an "average" tax rate for the country as a whole or collectively. The "average" tax rate from a "representative tax system" may then be used to calculate a hypothetical or potential tax yield from the actual tax base for each province and divided by its population to give a revenue yield on a per capita basis at a "national average rate." The equalization payment for each revenue source sector is calculated by multiplying the population of each province by the difference between the actual per capita yield and the hypothetical or potential per capita yield (positive or negative) at the national average tax rate. This final equalization payment is the sum of the source sector payments, positive and negative (which will be zero if the sum of source sector payments is negative).

¹ See Boadway and Flatters, *op. cit.* 1982; T.J. Courchene, *Federal-Provincial Tax Equalization: An Evaluation*, Vol. VII, No. 4. November, 1973; and T.J. Courchene, "Avenues of Adjustment: The Transfer System and Regional Disparities." In M. Walker (ed.), *Canadian Confederation at the Crossroads: The Search for a Federal Balance*, The Fraser Institute, Vancouver, 1978, pp. 145-186 for a comprehensive review of the controversial issues.

From Courchene, this may be algebraically represented as follows:²

$$E_i = P_i \sum_{j=1}^{33} t_{cj} B_{cj}/P_c - B_{ij}/P_i \quad (1)$$

where E_i = equalization payment to province i ,

P_i = population of province i ,

t_{cj} = hypothetical national average tax rate for revenue source j , i.e.,

$$= \frac{\sum_{i=1}^{10} t_{ij} B_{ij}}{\sum_{i=1}^{10} B_{ij}} \quad \text{for each } j,$$

t_{ij} = the actual tax rate in province i for revenue source j ,

B_{ij} = the tax base of province i for revenue source j

B_{cj} = the total tax base for Canada for revenue source j ,

$$= \sum_{i=1}^{10} B_{ij},$$

P_c = population of Canada,

$$= \sum_{i=1}^{10} P_i$$

As the yield of any given tax rate, including the national "average" tax rate, depends on the tax base, it is particularly important to note that "have-not" provinces have the opportunity to tax at the national average tax base, B_{cj}/P_i rather than their own base B_{ij}/P_i and will enjoy a transfer to the degree that their per capita tax base is less than the national average, i.e., $B_{cj}/P_c - B_{ij}/P_i$ is positive.

The tax base is therefore critical and should reflect the actual type of tax being used in the equalization formula and derived from data which are uniformly available for each province.

² Courchene, *Ibid.*, 1973, p. 485.

This simple description of the equalization serves to introduce the objectives of examining it with respect to the forestry sector:

- i) To assess the efficacy of the base as presently constructed in the forestry sector as a measure of the fiscal capacity of each province to generate tax revenue, and,
- ii) To examine the implications of using the current formulation as a "shadow" mechanism to allocate fiscal resources, directly through grants or indirectly through the tax system, to forestry renewal activities.

Before pursuing these objectives, it is important to note two significant developments in this fiscal arrangement which have import to the forestry sector.

In 1967, the system was changed to include all ten provinces to calculate the national tax rate (previously only the two highest-yielding provinces were used) and the number of source sectors was expanded to sixteen from four (natural resources were added in 1962).

Up until 1982, the vexing problem of natural resources revenues, specifically those from oil and gas, was threatening to dramatically raise the cost of the program, which was not related to increased needs for public services.

Till that time natural resource revenues were "capped" to 50 percent of non-renewable resource revenues and all natural resource revenues were limited to one-third of total source sector revenues.

For the 1982-86 agreement period (and presumably subsequent agreement periods), the equalization scheme is dramatically altered insofar as the provinces of Alberta and the Atlantic region are omitted in the construction of the national tax base.³ This exclusion has the interesting feature of lessening the "pressure" on the nonrenewable resource base cap. For the forestry sector, the implications are important in that the exclusion of the Atlantic Provinces will have an impact on the forestry sector base because of the significant proportion (area and harvest volume) of the forest lands held under private ownership. This will be evident in the following description of the forestry sector and the equalization calculation.

³ Similar to earlier suggestions that the tax base should be that of the N richest provinces, e.g., Courchene, *op. cit.*, 1973, p. 496.

Equalization and the Forestry Sector

The revenues that are to be equalized are defined in the Regulations as follows:

"forestry revenues means revenues derived by a province from

- (i) a specific tax imposed by the province on income from logging, and
- (ii) royalties, licences, rentals or fees related to the exploitation of the forestry resources of the province."

As noted earlier in this report, logging taxes are levied at the present time in Quebec and British Columbia, and a wide variety of stumpage fees and related charges are applied in all provinces.⁴

The calculation for the equalization entitlements for forestry revenues (revenue source 15 in the equalization program) requires the following:

Total volume of wood harvest (industrial) V_T

Volumes harvested from Crown lands V_P

Share of Crown volumes of total harvest V_P/V_T

Census value added from logging activity on Crown land

$$V.A._L \times V_P/V_T = R_L$$

Values of stumpage fees and related charges R_S

Logging Taxes where applicable R_t

Tax base for forestry revenues

$$R_{i,15} = \sum_{i=1}^{10} (R_L + R_S + R_t)$$

The factors common to all revenue sources are the population of Canada (P_c) and of each province (P_i) as well as the total tax base per sector (B_{cj} or in the case of forestry

$B_{c,15} = \sum_{i=1}^{10} R_{i,15}$) and that of each province ($B_{i,15}$) to calculate relative shares that each province has of population (P_i/P_c) and the tax base ($B_{i,15}/B_{c,15}$) in question.

Therefore the resulting equation of provincial entitlement by way of the forestry sector may be formulated as:

$$E_{i,15} = \sum_{i=1}^{10} R_{i,15} (P_i/P_c - B_{i,15}/B_{c,15}) \quad (2)$$

⁴ Gairns, *op. cit.*, 1982.

Those provinces with positive values of per capita forestry source revenues ($P_i/P_c - B_{i,15}/B_{c,15}$) will be entitled to share the forestry revenues (so-called "have-not" provinces) because of their "deficiency" while those with an excess (negative values) of per capita forestry source revenues will receive a zero entitlement. Simply stated, if provincial shares of population are greater than their revenue source shares of the source in question, they will get a positive share of that source revenue ($\sum_{i=1}^{10} R_{i,15}$).

The formulation of entitlement above (2) is simpler than equation (1) noted earlier insofar that the relative population and revenue source are expressed in percentage terms. However, it is worthwhile to re-examine equation (1) and the estimates of "tax rate" and tax base (t_{ij} and B_{ij}).

For the forestry sector (15),

$$B_{i,15} = V_P/V_T (B_{st} + R_L) \text{ for province } i, \quad (3)$$

$$t_{i,15} = \frac{R_s + R_t}{B_{i,15}} \text{ for province } i. \quad (4)$$

For some reason tax revenue (stumpage) appears in the tax base and is further adjusted downward by the ratio of crown to total harvest volumes. This would seem to be an anomaly as a more logical formulation would be:

$$t_{i,15} = \frac{R_s + R_t}{V_P/V_T (R_L)} \quad (5)$$

However, this is still imperfect because the tax base, notwithstanding the validity of census value added of logging activity as a proxy for a forestry tax base, implicitly assumes that the value added from logging on Crown lands is the same as that on private lands. Given that stumpage fees are administered by the relevant public agencies, albeit with increasing differentiation as to species, quality, end use, logging chance and location (to name a few factors), there is little correspondence to values captured from private lands (with the possible exception of British Columbia where stumpage approximates actual price-cost conditions in the market). The problem, of course, is that stumpage fees and related charges cannot be levied on the removal of standing timber from private lands. These values are taxed by income (personal, small business, or corporate) and/or logging profits taxes, with the latter being fully abated in the federal/provincial income tax system.

There are more serious shortcomings, however, in the present formulation with respect to the forestry sector. Provinces that have a significant proportion of private forest lands have an advantage in that the "apparent" resource base is smaller than their actual resource base. Consequently overcutting of private lands is advantageous. Further, each province can therefore "tax" a national per capita resource base so long as $P_i/P_c - B_{ij}/B_{cj}$ is positive.

It has been held that a province that receives equalization payments should not raise its tax rate (t_{ij}) as this would reduce its equalization payment. Nevertheless, if a province raised its tax rate, it would enjoy an increased equalization payment because t_{ij} contributes to t_{cj} and revenues for equalization would be increased. Other "have-not" provinces would gain similar benefit. This approach is not effective, however, in the forestry sector because British Columbia has a disproportionately high share of the forestry base. For fiscal 1978-79, British Columbia had 10.8 percent of the population and slightly more than 56 percent of the forestry base. Further, it accounts for approximately one-half of Crown timber harvests and over 80 percent of Crown revenues from stumpage fees and related charges (excluding logging profits taxes which contribute to the forestry revenues to be equalized). Therefore, provinces receiving equalization payments would have to raise their tax rates to prohibitive levels, and even then would only receive a marginal return viz the equalization formula for their effort.⁵

It has been suggested that equalization payments to each province should reflect its "tax effort".⁶ With the present formula, a tax increase in Province X, and especially one with an above average per capita resource base, can result in an incremental equalization payment in province Y.

The results of the 1978-79 equalization calculations for the forestry sector are given in Table I and are discussed with respect to the second objective, namely, the implication of utilizing the equalization formula as a "shadow" mechanism to allocate fiscal resources for forestry renewal.

A number of the data in Table I are somewhat suspect, particularly those relating to harvest volume shares and the tax base. Nevertheless, the results are revealing. To

5 Additional aspects of "tax efforts" were discussed in Appendix II and may have some implications for a revised equalization formula for the forestry sector.

6 R.A. Musgrave, "Approaches to a Fiscal Theory of Political Federalism" in *Public Finance, Needs, Sources, Utilization* (Princeton) 1961.

Table 1 - Equalization Entitlements for Forestry Revenues (Source 15)
1978/79

Item	Province										
	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	TOTAL
Crown Harvest Share (%) (V_c/V_T)	82.6	0	26.4	50.2	73.4	72.0	92.5	93.3	95.0	87.3	-
Value Added-logging (\$000) (R_s)	39 528	-	23 945	72 455	280 752	229 325	11 657	16 799	26 287	719 485	1 420 233
Stumpage Revenue (\$000) (R_L)	102	-	753	8 394	22 163	21 430	425	1 596	1 015	65 588	121 466
Tax Base (\$000) $B_{i,15}$ ($V_c/V_T - B_{i,15}$)	32 743	-	6 515	40 599	222 440	180 567	11 183	17 161	25 939	685 427	1 222 574
Population Share (%) (P_i/P_c)	2.4	0.5	3.6	3.0	26.8	36.1	4.4	4.0	8.3	10.8	
Tax Base Share (%) ($B_{i,15}/B_{c,15}$)	2.7	0	0.5	3.3	18.2	14.8	0.9	1.4	2.1	56.1	
Difference (+) or (-) (%) ($P_i/P_c - B_{i,15}/B_{c,15}$)	-0.248	0.54	3.058	-0.353	8.636	21.293	3.496	2.642	6.214	-45.260	
Entitlement (\$000)	-963	2 020	11 856	-1 370	33 478	82 545	13 551	10 244	24 091	-175 452	

Sources: Canada, Department of Finance, Ottawa.

begin, Newfoundland, New Brunswick, and British Columbia are "have" provinces. Newfoundland is not entitled because of its share of the tax base. New Brunswick and Nova Scotia have similar forest economies but the latter enjoys having a significant portion of its timber requirements satisfied from private lands. Both provinces charge approximately the same fees on a unit volume basis for Crown wood. British Columbia enjoys both an above average share of tax rate and tax base.

Quebec and Ontario also present an interesting contrast in equalization payments received. Quebec charges approximately one-half of that in Ontario for stumpage on Crown wood harvested and has a larger share of the forestry tax base. However, due to a significantly smaller share of population, Quebec receives substantially less equalization payments in the forestry sector. Conversely, an increase in the tax effort in Quebec would yield an increase in equalization payments.

The prairie provinces have proportionately the same population to tax base share ratios, but Alberta enjoys a greater absolute difference and therefore receives significantly greater equalization payments.

As noted before, British Columbia needs only to raise its tax marginally to cause increased payments to flow to the receiving provinces as a result of its disproportionately large share of the tax base.

In summary, this cursory examination of the equalization formula in the forestry sector suggests that, aside from technical shortcomings in the calculation, the formula is viewed as inappropriate as a "shadow" mechanism for allocating fiscal resources to forestry renewal. This is so because of the incomplete coverage of the total resource base, the dominating effect of British Columbia, and most important, a partial and misleading view of the relative importance of the forestry sector to several provincial economies. Nevertheless, various aspects of the equalization program in the forestry sector deserve more complete examination, particularly tax effort and the effect of the exclusion of Alberta and the Atlantic Provinces in constructing the national tax base.